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# 1923

# REPORTS

OF THE

# Pennsylvania State Bee-Keepers' Association

BEING REPORTS OF THE

Twentieth, Twenty-first, Twenty-second

Twenty-third and Twenty-fourth

# ANNUAL CONVENTIONS

WITH THE LIST OF OFFICERS OF EACH YEAR

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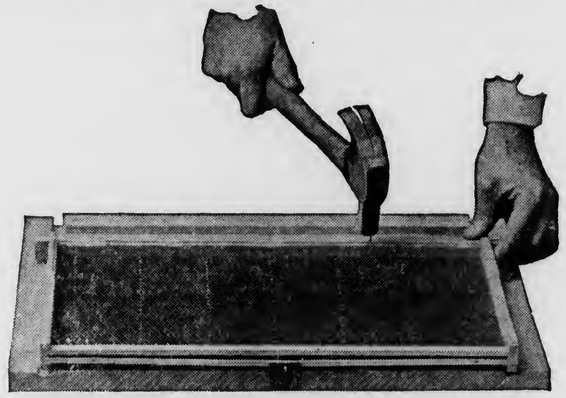

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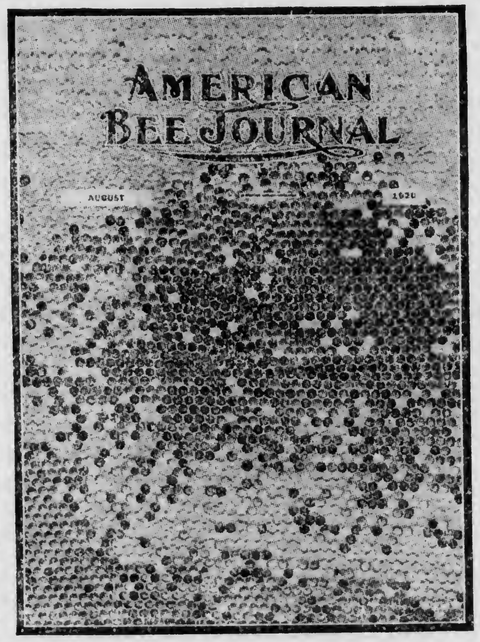


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# PREFACE

The editors of this report have endeavored to do their best with the material available. As will be noted, many of the speakers did not hand in a written copy of their addresses, hence their names have been reported but without their addresses, which is indeed a loss to the beekeepers of the State. We realize that it takes work to write out an address, but a written address reaches hundreds, when sent out in a report, while a spoken one reaches comparatively few, and the benefit of the written one is multiplied accordingly.

It will pay the reader of this report to look over the advertisements,—and patronize our advertisers, who have made this report possible.

We believe they are all reliable, and will give one hundred cents to every dollar paid them for goods.

We respectfully dedicate this report to the best interests of the members of this Association.

Committee,

PROF. E. J. ANDERSON
FREDERICK HAHMAN
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# Proceedings of the Twentieth Annual Meeting, Harrisburg, Pa., January 24 and 25, 1923

Prayer by the President.

PRESIDENT'S ADDRESS, by Harry W. Beaver, Troy, Pa.

SECRETARY-TREASURER'S REPORT, by Charles N. Greene, Department of Agriculture, Harrisburg, Pa.

## Buying Bees

By D. C. Gilham, Schuylkill, Pa.

Mr. President, fellow beekeepers, ladies and gentlement: We cannot all be given the privilege of being last on the program and then saying, "Last, but not least," so they put me first with about the least to say. Referring to my subject, "Buying Bees," I have done a lot of that within the past fifteen years. Bought at a profit and sometimes at a loss until I learned a little more about the value of the bees according to the kind of hive they were in and still with it all we find we can learn more every day no matter how old we are or how long we have been in the business.

I want to speak on just last season's transactions. I had placed an early order in February for fifty 3fr. nuclei. Later I wanted to increase the order to 75 but the party had all the orders he could handle. I looked about elsewhere for twenty-five nuclei from the south and finding same at a little cheaper price on account of later delivery I thought I was saving the difference in price of $1.10 per nucleus. When the season was over I found I had lost more than I thought I had saved on account of the later delivery.

The first lot of fifty 3fr. nuclei arrived May 16th, and were placed in their hives as soon as possible during a cold drizzling rain. The nuclei started to pick up as weather conditions improved.

The second lot of twenty-five 3fr. nuclei arrived June 20th. They arrived mostly on new combs which contained a lot of honey, for this reason several were in bad shape, the new combs were broken and many bees were lost. They started to build up as weather conditions were all right at that time, but when the dry weather came in August these nuclei were not as strong as those which arrived a month earlier. Several of the first lot had started work in the supers. They had drawn out the foundation in the extracting frames and had some honey stored in them. As the dry weather continued, they used up the surplus in the supers, while the second lot had no reserve stores and had to be fed. The second shipment required more feed and more attention and went into winter quarters with less bees. I cannot expect them to come through the winter in as good shape as the stronger colonies. Although both lots are wintering in the same cellar, I believe the nuclei bought earlier in the season, although costing a little more in cash, are the cheapest in the end.

This season I inspected quite a few colonies for intended purchase by a large fruit grower. Where we found American boulbrood we left our hands off the bees. For colonies in standard hive bodies in good shape, the purchase price was considerable more than for those in which new frames were required and considerable time and work were required to put them in good shape.

I saw a freak of lightning last season that was remarkable. The bolt came down a large pine tree and upset two colonies of bees. It tore the hive bodies and bottoms apart so that I had to renail them. The bolt entered the back of one hive about the center and about half an inch below the top, cut the tin rabbet in half after burning a nice clean hole through

the wood. It followed up the wires in the frames and broke or burnt every wire in the hive. A few bees were killed but the majority survived the shock.

THE GREATEST ENEMY OF BEES, Prof. N. E. Phillips, Extension Apiarist, State College, Pa.

AMERICAN HONEY PRODUCERS LEAGUE, by Kenneth Hawkins, representing the G. B. Lewis Co., Watertown, Wis.

COUNTY ORGANIZATIONS IN PENNSYLVANIA, by Geo. H. Rea, representing the A. I. Root Co., Reynoldsville, Pa.

## Accomplishments of Allegheny County Beekeepers' Association

By A. T. KEIL

Sec'y-Treas., Allegheny County Beekeepers' Association, Pittsburgh, Pa.

In reading this on the accomplishments of the Alleghany County Beekeepers and their association, I desire to refer back previous to the organization of an association and give credit to the good work of Brothers Greene, Rea, County Agriculturist and to others without whose help we would have been at a loss to get the beekeepers together. I wish also to explain the duties of our district supervisors which have worked out very successfully.

In May, 1921, in talking to a representative of the A. I. Root Co. and our County Agriculturist, I made the remark that in my travels among beekeepers, I was often asked why there were no beekeepers' meetings in or around Pittsburgh. The County Agriculturist advised that he knew of a Mr. Greene who probably could be secured and that the Farm Bureau would furnish the postage for mailing circulars. The Root representative advised that he would try and give us a list of beekeepers in the vicinity of Allegheny County. I got out the circular letter, and on July 2nd, 1921, Mr. Charles N. Greene, Chief Apiary Advisor of Pennsylvania, gave a talk to over one hundred and seventy-five beekeepers. We advertised the meeting in newspapers and sent out circulars to about four hundred beekeepers.

On October 29th, 1921, we had another beekeepers' meeting and the report that there was considerable American Foul Brood brought up the idea of our organizing an association. Mr. W. S. Bockstone was elected president; W. W. Brockuner, vice-president, and A. T. Keil, secretary-treasurer. At our November meeting the organization was really started. Realizing that Allegheny County is a rather large district and a big job for the officers, we decided to subdivide it into geographical and travel districts, having a member represent us in each district. Such members were titled District Supervisors. The duties of these Supervisors is to keep in touch with beekeepers in their locality, report to the association any non-compliance with state laws pertaining to bee culture as covered by act of General Assembly No. 58 (or any other act), assist authorized inspectors or speakers in calling on association members, and arrange district meetings and locations when speakers are obtained. They also act as a committee of one to secure members in their respective localities. We urged and had most of the Supervisors take the free correspondence beekeeping course of State College. Thus with their personal experience and the two day beekeeping course by Prof. Geo. H. Rea they were expected to be able to advise and help other bee-keepers. Personally my motto is, "Not necessarily more but better beekeepers." The Supervisors were not expected to try to get more people to take up beekeeping but get the present beekeepers educated to produce more honey, use modern hives, and to know and treat American Foul Brood before it spreads throughout their yards. We had a special meeting where Prof. Greene demonstrated transferring colonies diseased with American Foul Brood.

This plan of District Supervisors has worked out very successfully, considering that we had to locate members who would take up the work and



who were willing to make a study of bee-keeping and also take time to call on beekeepers, etc. We now have ten districts with a supervisor in each. During the past summer we had a meeting in each district and in some several meetings all of which were well attended. Our picnic held on Labor Day, 1922 was well attended with good speakers and beekeepers.

Our accomplishments as you will note from the following figures, which covers the report of only forty-nine members, shows an increase of 33%, on November 1st, 1922, over that of the spring count. These 49 members had 554 colonies in the spring of 1922 and 739 colonies November 1st, 1922. Supplies purchased during the year amounted to $2909, the production of honey was 6772 pounds extracted and 1652 sections. This did not include the fall honey which is the main and in some localities the only honey obtained. Of the forty-nine members reporting ten had taken the correspondence course. The total receipts of the association for the year were $184 with a membership on November 1st of one hundred seventy-two.

This brings me to our present outlook. We have at all times believed in giving every member something or a run for his money, so at our last meeting we decided to put out a monthly letter of timely suggestions, warnings about foul brood, and other items of interest to the beekeeper.

In conclusion I would like to make a suggestion which may have been brought up before. I will state in as short a time as possible my personal idea of a beekeepers' association. It is to have the Pennsylvania Beekeepers' Association be the parent of all other associations. The State Association would publish a monthly letter or other publication, sending it out to all the associated members. The Allegheny County Beekeepers' Association would be known as Pennsylvania State Beekeepers' Association, Allegheny County Chapter or District, other county associations being named accordingly. Each association paying in one-half of their yearly dues, and each association sending in news items and notices of their next meetings. This would give all members news from various sections of Pennsylvania, and make one large organization with its members working hand in hand.

BUYING AND SELLING HONEY, by Odell F. Burch, Philadelphia, Pa.

PRODUCING AND MARKETING A CROP OF HONEY, by Edwin J. Anderson, Ridgway, Pa.

BEEKEEPING TODAY AND TOMORROW, by Geo. H. Rea, Representative, A. I. Root Co., Reynoldsville, Pa.

WHAT IS WRONG WITH HONEY PRICES? by Kenneth Hawkins, Representative, G. B. Lewis Co., Watertown, Wisconsin.

## How I Solve My Problems—Winter Protection

By L. B. Huber, Landis Valley, Pa.

To winter the bees most successfully and economically has long been a problem with beekeepers. Since it has been so convincingly demonstrated that beees need more protection than the best ordinary hives afford for outdoor wintering, there is no room for deferred action. To the credit of beekeepers in general, it can be truthfully said that they are resourceful, and that many different systems for outdoor wintering have been devised. We will assume that all the other requirements, or in other words, ideal colony condition, such as vigorous queens with plenty of young bees and ample stores are present. They are absolutely necessary and will ordinarily bring the bees through the winter in some sort of fashion.

Since we know more about the formation of the winter cluster in the hive, how the vitality is conserved, how the consumption of honey is lessened, and how moisture is controlled by adequate packing, the question resolves itself as to how this work can be accomplished in the best and most econ-

omical manner. I will endeavor to treat this subject from the standpoint of a beekeeper who has plenty of baled straw at his disposal.

I find no fault with the large beekeeper with his specially constructed bee cellar or the one with the most up-to-date packing cases. I will try to outline my method of packing with straw, as practiced for several seasons with great success.

Straw is excellent packing material and can be used to good advantage for packing bees. To begin, large stones are laid on the ground about six feet apart and opposite each other. Wooden cross sections of old rails or posts are laid upon the stones. They are placed about six feet apart continuously until the desired length of platform is reached. Old fence rails, boards, or scantlings are then laid lengthwise upon the cross sections. This makes a raised platform upon which to lay the lower course of straw bales. The object of the raised platform is to prevent a hiding place for vermin and keep the straw dry and protected from rot. The bales of straw are laid across the platform and fitted tight together. Right back of this is laid another row of bales lengthwise three bales in height in regular wall fashion, thus binding them securely. The ends are also tightly walled up. The front facing the south is left open. It is absolutely necessarily for the roof to be water tight as water in the straw would cause dampness which might be disastrous to the bees. Scantlings are laid crosswise to support the roof. Boards are first laid upon the bales of straw in the rear of the structure. Posts are dug into the ground to support the scantlings in the front which is higher than the rear. The pitch must be sufficient to shed the water. Boards are laid crosswise upon the scantlings and nailed fast. Tar paper or roofing material is tacked on the boards. The house is then ready for the bees.

The hives are placed about two feet apart, the spaces between the hives are packed with loose straw. On top of the hives are placed gunny sacks, one end of which is allowed to hang down at the front to within a few inches of the entrance. These ends are tacked against the hives, the tops of the bags are held in place by the straw which is filled in the several feet to the roof. When the structure is completed it is well to prop the sides securely and fasten down the roof in order to be doubly sure that the storms of winter will not harm the structure. The bees will need no further attention until the blossoms come forth in the spring.

I winter all of my colonies in two story hives. The extra heavy protection enables the bees to get around to the honey at all times. They can also keep the few bees that die during the winter cleaned away from the entrance. I have had no trouble from mice as yet. The little white mice or deer mice are the only ones that sometimes make trouble within the hive, if the entrance is not sufficiently contracted, however they are likely to get into any hive whether packed or not.

This beehouse if well built will last for many years. The bees are taken out and placed on their summer stands when settled warm weather comes in the spring. I have a small apiary in the apple orchard, which is demolished each year and the straw used to mulch the trees thus serving a double purpose. It will be noticed that the hives have a thickness of straw two feet at the bottom and top and over four feet at the back. The front of the hives have no more protection than the gunny sacks, but the straw on the top of the hives is made to extend beyond somewnat making the whole thing snug and dry at all times. This also prevents the sun's rays from striking the hives too much during sunny days in winter.

When the bees are first placed into the house in the fall they are left uncovered a week or so, until the bees become accustomed to the new location. I also try to make the transfer during a time when the bees will not fly out very much. Cool drizzily weather during early November is chosen for this work. The final packing can be deferred a while longer. I have had no trouble with bees getting lost.

I have not figured out the exact cost per colony to pack the bees by this method, but some idea can be formed. The bales of straw contained about



eighty pounds, and two tons of straw suffice to house twenty-five colonies. The straw would cost about ten dollars per ton, but as mentioned before a house would be serviceable for several years.

## Transferring Bees

A. T. Keil, Sec'y.-Treas., Allegheny Co. Beekeepers' Association

In submitting this paper on Transferring Bees, I will endeavor to explain as clearly as possible the problems I met from experience and how different methods fell short. Finally, I will explain my conclusions regarding the best method of transferring from old to movable frame hives. This method is not a new one which has never been advocated, but one which never has been given the publicity it deserves.

During 1921 I paid special attention to the various methods of transferring. I tried out under different conditions and times of the year, transferring from kegs, logs, trees, box contraptions bound with heavy steel, and some made out of one and one-half inch plank doubled and spikes as though they were intended to be dropped off a twenty-four story building without being damaged.

In doing inspection work last summer, I had explained to me various methods tried and results obtained. In one case a man was instructed to remove a part of the top of the old hive and drum the bees up into a modern ten frame hive. After the bees were up a queen excluder was placed under the new hive to keep the queen in. The idea was that the bees would carry the honey up from below, the brood would hatch out and go above, and that the bees would pitch in and build up a colony in the new hive. This looked good theoretically but was a waste of time. I came to the place about six weeks after the operation began and there was very little accomplished. There was quite a lot of honey sealed over in the old hive where the brood had hatched and comparatively little was accomplished in the new hive.

I experimented a lot in drumming bees and queens up and placing queen excluders between the old and new hive. I tried some by placing the queen and new hive with bees above and some below but all gave slow results. If the bees were fed, too much honey was placed in the old hive and not enough attention was given to drawing out foundation in the new hive. When the old hive was removed this extra honey was taken away and it was found that the full sheets were about one-fourth drawn out. If it was a good summer and the transferring started soon enough the bees probably would get both hives filled, but if the old hive was removed when the twenty-one days were up, which is allowed for brood to hatch, most of the nectar, if not all, was in the old hive. There would be hatched brood in the hive but most of the twenty-one days were lost.

In concluding my study I found that when colonies of bees were drummed on full sheets of foundation and the old hive removed the treatment more closely resembled their natural swarming and the bees worked accordingly.

This and other facts lead me to the conclusion that the best way to transfer is to drum the bees and queen into a new movable frame hive on full sheets of foundation (Medium Brood) leaving sufficient bees to take care of hatching brood. A new hive is placed on the old stand and the old hive is faced in the opposite direction or nearly so at a distance to the side or rear. The entrance of the old hive is contracted and after a few days it is gradually moved back to the side of the new hive and faced in the same direction. In about nineteen days after drumming set the old hive back a little and move the new hive about half way between where it had been and where the old hive had been. Tear the old hive apart and brush the bees in front of the new hive, smoke should be blown into both hives. Usually there will be a new queen in the old hive, so precautions will have to be taken either to kill or cage her.

As in all manipulations of the hive look for Foulbrood before transferring as this will change operations.

I would not recommend transferring early in the spring or late in the fall. If it is absolutely necessary say before May 15th, or after October 1st, I would say cut out all possible comb and fit it into frames leaving out drone cells. When summer comes gradually do away with these frames as they seldom are built economically. If no foulbrood is present, brood taken from trees cut in the woods can be tied in frames and allowed to hatch over the colony. In transferring or hiving swarms I use two frames of brood, larvae, etc. With this method I never had a swarm leave. I would never take frames of brood from a colony that is storing a surplus of honey.

You notice that I started to brush bees out of the old hive in nineteen days, I have kept close watch and have yet to find where the eggs or young larvae were fed and matured. It is seldom that many bees are left after drumming. I prefer getting the young bees where they will do the most good.

When transferring it is an ideal time to requeen, and if done early enough is also a good time to increase colonies.

TREATMENT OF AMERICAN FOULBROOD, by Charles N. Greene, Sec'y-Treas., Pennsylvania State Beekeepers Association, Harrisburg, Pa.

BEEKEEPING IN OUR STATE COLLEGE, by Prof. H| G. Killinger, Liverpool, Pa.

BEEKEEPING IN PENNSYLVANIA, by Prof. N. E. Phillips, State College, Pa.

DISEASES OF ADULT BEES, by Dr. E. F. Phillips, Apiculturist, U. S. Department of Agriculture, Washington, D. C.

BEEKEEPING A VOCATIONAL AGRICULTURAL PROJECT, by Prof. Willis R. Skillman.

STANDARD SMALL AND LARGE HIVES, by O. C. Fuller, Turbotville, Pa.

ORGANIZATION FOR BEEKEEPERS, by P. A. McGowan, Williamsport, Pa.

SPRING MANAGEMENT, by Edwin J. Anderson, Ridgway, Pa.

BEEKEEPING ON THE FARM, by Hon. John L. Post, Taylorstown, Pa.

BEEKEEPING REGIONS OF PENNSYLVANIA, by Geo. H. Rea, Representative, A. I. Root Co., Reynoldsville, Pa.

WINTERING BEES, by Dr. E. F. Phillips, Apiculturist, Washington, D. C.

ELECTION OF OFFICERS—UNFINISHED BUSINESS—REPORT OF COMMITTEES.

1923

| 1922 | | | 1923 | | |
|---|---|---|---|---|---|
| Jan. 30 | Cash on hand | $482.70 | Feb. 28 | Sav. Acc. G. N. B. | $652.80 |
| | Dues collected | 150.50 | | | |
| | Int. on sav. acc. | 19.60 | | Total | $652.80 |
| | Total | $652.80 | | | |



## Proceedings of the Twenty-First Annual Meeting, Harrisburg, Pa., January 24, 25 and 26, 1924

The Twenty-First Annual meeting assembled in the House of Representatives, State Capitol, Harrisburg, Pa., January 24, 25, and 26, 1924, with Harry W. Beaver presiding.

Prayer by Prof. Geo. H. Rea.

ADDRESS OF WELCOME, by Harry W. Beaver, Troy, Pa.

SECRETARY-TREASURER'S REPORT, by Charles N. Greene, Department of Agriculture, Harrisburg, Pa.

THE BEEKEEPING OPPORTUNITIES IN PENNSYLVANIA. Leaders, Geo. H. Rea, Service Specialist, A. I. Root Co., Medina, Ohio, and N. E. Phillips, Extension Apiarist, State College, Pa.

Assistants: F. J. Strittmatter, Bradley Junction, Pa.; Harry W. Beaver, Troy, Pa.; Willis R. Skillman, Carlisle, Pa.; J. Dwight Hull, Honesdale, Pa.; Charles F. Coombs, Wilkes-Barre, Pa.; Charles F. Hoser, Norristown, Pa.; A. T. Kiel, Mars, Pa.; H. G. Eisman, East Springfield, Pa.

BEE DISEASES AND THEIR TREATMENT: Leaders, J. I. Hambletom, Apicultural Assistant, Washington, D. C., and N. E. Phillips, State College, Pa.

Assistants: Dr. J. C. Hutzelman, Glendale, Ohio; Harry W. Beaver, Troy, Pa.; Calvin C. Brinton, Bloomsurg, Pa.; Robert Conn, Roaring Branch, Pa.; Frank Hahman, Altoona, Pa.; D. C. Gilham, Schuylkill Haven, Pa.; C. P. Steinbacker, Duboistown, Pa.

PENNSYLVANIA BEE LEGISLATION, Leader, Charles N. Greene, Chief Apiary Advisor, Dept. of Agriculture, Harrisburg, Pa.

Assistants: Calvin C. Brinton, Bloomsburg, Pa.; E. J. Anderson, Ridgway, Pa.; Prof. H. C. Klinger, Liverpool, Pa.; A. T. Kiel, Mars, Pa.

BEES, HIVES, AND EQUIPMENT FOR THE COMMERCIAL APIARY. Leaders, J. I. Hambleton, Washington, D. C., and Geo. H. Rea, Service Specialist, A. I. Root Co., Medina, Ohio.

Assistants: Calvin C. Brinton, Bloomsburg, Pa.; O. C. Fuller, Turbotville, Pa.; Harry W. Beaver, Troy, Pa.; Robert Conn, Roaring Branch, Pa.; Fred E. Merrill, Muncy, Pa.; E. J. Anderson, Ridgway, Pa.

THE IMPORTANCE OF BEEKEEPERS' ASSOCIATIONS IN PENNSYLVANIA. Leaders, Geo. H. Rea, Medina, Ohio, and N. E. Phillips, State College, Pa.

Assistants: H. G. Eisaman, East Springfield, Pa.; A. T. Kiel, Mars, Pa.; Charles F. Coombs, Wilkes-Barre, Pa.; E. J. Anderson, Ridgway, Pa.; Joseph H. Perry, Wyoming, Pa.; P. A. McGowan, Williamsport, Pa.; Charles N. Greene, Harrisburg, Pa.

WINTER PROBLEMS IN PENNSYLVANIA BEEKEEPING. Leader, N. E. Phillips, State College, Pa.

SPRING MANAGEMENT AND QUEEN REARING. Leader, Geo. H. Rea, Medina, Ohio.

ELECTION OF OFFICERS AND REPORTS OF COMMITTEES.

1924

| 1923 | | | 1924 | | |
|---|---|---|---|---|---|
| Feb. 28 | Cash on hand | $652.80 | Jan. 25 | Cash in sav. acc. Mechanics Trust Co. | $703.78 |
| | Dues collected | 119.00 | | Troy G. N. B. | 11.45 |
| | Int. on sav. acc. | 27.37 | | Paid Miller Mem. Fund | 100.00 |
| | Miller Mem. Fund from Schuylkill Co. B. K. A. | 15.00 | | Paid for badges, etc. | 8.94 |
| | Northern P. B. K. A. | 10.00 | | Total | $824.17 |
| | Total | $824.17 | | | |

Jan. 25, 1924 Permanent Accumulative Fund:

| | | |
|---|---|---|
| Mechanics Trust Co. | $703.78 | |
| Troy Grange National Bank | 11.45 | $715.23 |

The following amendment to the constitution has been submitted for adoption at the annual meeting:

### AMENDMENT

SECTION 1. A Permanent Accumulative Fund shall be established with the monies and savings accounts in the hands of the Secretary-Treasurer for investing or loaning as hereinafter provided.

SECTION 2. The Executive Committee of the association shall have general supervision but the Secretary-Treasurer when duly qualified shall be the custodian of the Fund. The Secretary-Treasurer shall qualify by giving the Executive Committee surety for twice the amount of the Fund.

SECTION 3. Only the annual income from the Fund shall be available for annual expenses of the association but unexpended funds after each annual meeting shall be immediately added to the Permanent Accumulative Fund.

SECTION 4. The Fund may be invested only in approved government, municipal and such other bonds and investments as are available to National Banks and Trust Companies for investment of trust funds, or; may be loaned to meritorious students specializing in beekeeping at any approved college, which students shall have furnished ample surety to guarantee payment of principal and interest when due.

## Proceedings of the Twenty-Second Annual Meeting, Harrisburg, Pa., January 21st and 22nd, 1925

The Twenty-second Annual Meeting assembled in Fahnestock Hall, Y. M. C. A. Building at Harrisburg, Pa., January 21st and 22nd, 1925 with Albert T. Keil presiding.

PRAYER, by Prof. H. A. Surface.

PRESIDENT'S ADDRESS, by A. T. Keil, Mars, Pa.

SECRETARY-TREASURER'S REPORT, by Charles N. Greene, Chief Apiary Inspector, Department of Agriculture, Harrisburg, Pa.

## The Vital Autumn, Winter, Spring and Summer Problems In Bee-Keeping

**Leader: Edwin J. Anderson, Ridgway, Pa.**

Each beekeeper who wishes to have a successful season in bee-keeping would do well to have a definite goal and then to carry out all his plans faithfully with this goal constantly in mind. His aim for achievement for the year should be nothing less than a maximum production of honey from each colony; he should strive to make every colony so strong and keep it at work so well that every colony will gather nearly the maximum crop of honey. With this standard, a schedule of work can be written in advance for the coming year barring changes made necessary by local conditions of weather and honey producing flora. The apiary manipulations of each locality are in some degree different from those of every other locality and, of course, require a somewhat different schedule, even though the fundamental principles in manipulation are the same for all localities. A schedule may be worked out and rigidly followed for any one locality.

No beekeeper can obtain a maximum crop of honey unless every colony of his apiary contains the largest possible number of bees at the beginning of the honey flow. Each colony must be a rousing big one with about ninety thousand bees at the beginning or just after the beginning of the honey



flow. If the bees are less in number a proportional percent of the crop will be lost.

In working for this end, the beekeeper can do no better than make the abbreviation, "R. S. V. P.," his pass word. In French it means, "Answer if you please," but to the beekeeper it has the all-important meaning of Room, Supplies, Vitality, and Protection in abundance in all seasons of the year.

The beekeeper should begin to apply these necessities as vital problems in the early part of August and apply them continually until the beginning of the honey flow. First of all in importance is the queen, the source from which all the colony energy comes and the foundation for the building of a successful colony of worker bees. It is she alone that can lay the eggs for a force of young bees to pass the winter and build up a great colony in the spring. However, such a young queen can not accomplish all of which she is capable unless she has plenty of empty combs in which to lay and to expand the brood nest, nor can she do this unless the bees have a supply of honey as food for the thousands of hatching young bees. This supply of honey cannot fall below fifteen pounds of honey in the early fall. If it does, the bees will stop rearing brood to a considerable degree or entirely and the whole season's work for the coming year will at once be given a severe setback.

With a young queen, plenty of young bees, room, and plenty of honey in the hive in the fall, the problem of wintering comes next, another all-important one. Here again it is a problem of supplies, vitality, and protection with emphasis on the first and last. When the bees are protected from the cold, they can conserve both their supply of food and their supply of vitality, for it is only through the eating of honey and physical labor that the hive is kept warm and the cluster temperature kept above 57 degrees Fahr. Bees which have worn out their bodies and their energy in the labors of keeping warm an unprotected hive, with perhaps a cold draft blowing in on them from the entrance, will not have the strength in the spring to gather honey and pollen to raise the necessary ninety thousand bees for the coming honey flow.

We would do well to pack our bees with several inches of some material or put them in a proper cellar for the winter. Purity of supplies for winter food is a greater factor in successful wintering than any other known to a colony of healthy bees. In our cold climate a poor quality of honey, such as dark honeys from late fall, fruit juice, or honeydew, will mean sure death to most colonies during a hard winter, while light honey of good quality will permit a colony to winter in a colder climate with good success. Even though the bees of many colonies are not killed because of such poor quality of honey, they are at least abnormally filled with feces and overworked or sick of dysentery so they are nearly worthless for the tasks of early spring. If the bees do not have this good quality of honey, a ten pound pail of thick sugar syrup feed in early October will carry them successfully over the most severe part of winter. We certainly can not overlook protection and food as real problems of wintering.

The beekeeper can now pass to the questions of spring which are just as important as those of winter or fall. It is in the spring that the working force of bees must again be built up before the beginning of the main honey-flow, not at the expense of the surplus crop. If you have provided the colony with a young queen, at least 45 pounds of honey, protection from the cold of winter, room for the queen to lay and room for a possible spring surplus, you do not have any real spring problems left except perhaps the swarming problem. The bees will then go ahead and raise the desired working force of about ninety thousand bees before the beginning of the main honey-flow. You may go through the hives and equalize the colonies or unite any that are queenless but these are problems of minor importance.

If you have followed with the "R. S. V. P." program, you have one more problem of vital importance remaining; the problem of colony morale and swarming. It is a real test of beekeeping skill to handle the bees so that they will remain busily at work instead of developing the "swarming fever."

Several small points have their value in spring and summer as a means of decreasing the tendency to swarm:

1. Plenty of ventilation.
2. Protection from the hot sun.
3. An absence of drones.
4. Room for the queen to lay.
5. Room for the storage of honey.
6. Room for the storage of raw nectar.
7. A place for the excess of young and old bees so they keep away from the brood chamber.
8. A young queen as provided in the fall.

Even though you have taken all these precautions the bees will often acquire the swarming fever. In this case, a condition must be made within the hive similar to that of a newly hived swarm. If you are producing comb honey, three frames of brood can be removed from the center of the brood chamber and empty combs can be put in their place. In case of the necessity for more drastic action, all the brood combs can be removed and replaced by sheets of foundation with one drawn comb in the center, in which the queen can lay at once and the bees can store pollen instead of in the sections. If you are producing extracted honey, the queen can be kept in the bottom chamber under a queen-excluder while the brood is put on top above two or more supers. This procedure can be repeated every ten days from the beginning to the end of the swarming season. Any queen cells that develop above in the brood chamber should be cut out or may be used for requeening. In either case, the brood-chamber never becomes filled with brood and swarming is greatly reduced. There is one more factor which should be stressed. It has to do with the presence of empty cells for the storage of raw nectar. After a colony has filled all the empty cells with raw nectar, even though none are sealed over, the bees become cramped for room, begin to loaf, and begin preparations for swarming. As soon as the last super is from one-half to two-thirds full an empty one should be put underneath. If it is near the end of the honey-flow, the empty super should be put above.

In summing up the vital problems we can but repeat—plenty of room, supplies, vitality, and protection at all seasons outside the honey-flow. Build up the working force to ninety thousand bees before the honey-flow and not at the expense of the honey-flow, then take measures to keep this force of bees at work by providing room for honey and nectar storage, for brood and for bees, and by keeping the queen and brood apart. In this way you will approximate your standard of a large honey crop from every colony in your apiary.

ASSISTANT, FREDERICK HAHMAN, ALTOONA, PA.

In endeavoring to supplement the able paper to be read by Mr. Edwin J. Anderson on, "The Vital Problems in Beeekeeping," covering a whole year's work, a detailed exposition of the methods advocated by him would be but a repetition, and to save valuable time of the Convention a so-called "blanket" recommendation on my part may serve the purpose better.

In turning over this subject in my mind, I remembered something that I had read during the early days of my bee-keeping experience in that classic of bee culture, "Langstroth on the Honey Bee." After hunting up the old cherished volume and looking over its long unused pages, I found what I was seeking. It is contained in the very last sentence of the book, and thus we can understand that it is the final admonition from the pen of him, whom we lovingly call the father of American bee-keeping. I will quote the sentence: "The essence of all profitable bee-keeping is contained in Oettl's Golden Rule: 'Keep Your Stocks Strong.' If you cannot succeed in doing this, the more money you invest in bees, the heavier will be your losses; while, if your stocks are strong, you will show that you are a bee-master, as well as a bee-keeper, and may safely calculate on generous returns from your industrious subjects."

These prophetic words were quoted by Rev. Langstroth nearly eighty



years ago, and their author to whom he gives credit, an old Austrian bee-keeper, kept bees twenty or thirty years before Langstroth's time, hence we can assume they are at least one hundred years old, however, they are as true today and as fundamentally sound as at the time they were uttered.

Now why do we not have our colonies strong at all times? It is not the fault of locality or weather, or the honey flora, and most assuredly not the fault of the bees themselves. They work hard enough. It is our own fault; we are not what Langstroth terms "bee-masters."

Success in bee culture is dependent on attention to minor details which may seem insignificant in themselves, but if neglected, frequently spell failure, and one of the worst habits a bee-keeper can fall into is to procrastinate and not do necessary work promptly. Neglect is seldom remediable.

There is absolutely no reason why we should not be well informed in every phase of bee culture. No branch of Rural Agriculture has better text books and journals than we have. The research work and bulletins thereon, issued by our government and separate states, is of inestimable value. These bulletins are to be had free for the asking. What more can we desire for guidance?

In discussing the vital problems, I am reminded of an address delivered before this body, in this very room, by Dr. E. F. Phillips, then of Washington, D. C., on the amount of food needed by a colony during the upbuilding period in spring. I have attended many conventions and innumerable bee meetings, but do not remember ever having heard an address that made such a profound impression on my mind as did that address. I ascribe this to the manner of delivery, and the telling words used by Dr. Phillips, to bring us to a realization of this most vital requirement. He pointed out how we beekeepers deluded ourselves into the belief that the bees are bringing in nectar in sufficient quantity to help out the stores prsent. The great drain on the available stores at their command, and the dire consequences resulting from any shortage so apt to occur at this critical time, even if but of a few days duration, checking the progress of the colony to such an extent, that it would result in a curtailment of the surplus honey crop later on, and frequently of entire failure to secure any surplus crop at all. I would recommend all present here to give this vital point their careful and earnest attention this coming spring, when bees again start housekeeping.

In conclusion permit me again to call your attention to that golden rule of bee-keeping to "Keep your stocks strong" and by so doing strive to be what Langstroth termed a "bee-master as well as a bee-keeper."

ASSISTANT: D. C. GILHAM, SCHUYLKILL HAVEN, PA.

In adding a few thoughts to what Mr. Anderson has just given us, may I add a little experience of my own that is going on at present.

As I see it, one of the vital things is good winter stores. Last season the bees went into my cellar with plenty of stores, but most of it was honey dew. They soon became restless, clustered outside, then flew away from their hives. After several warm days, the cellar temperature ran up to such an extent that I had to secure a large cake of ice and play an eelctric fan on it to cool off the cellar and the bees. I lost many bees that winter while those that did not die came out weak.

This season we had a dry fall and I was compelled to feed sugar syrup for winter stores. The bees are now in the cellar and are resting very quietly as compared with last season. The temperature has gone up for several days on account of outside conditions but the bees continu to remain in their hives. There is but a slight sprinkling of dead bees on the cellar floor which is a natural condition. Good winter food seems to be the sequel to it all.

ASSISTANT: CHESTER P. STEINBACHER, S. WILLIAMSPORT, PA.

ASSISTANT: HARRY W. BEAVER, TROY, PA.

Mr. Chairman and fellow beekeepers: It gives me great pleasure to add my bit to what has been already said on this all-important subject.

We will call summer the beginning of the beekeeping year, as this is the

most interesting time, in time of peace prepare for war. In other words, prepare for winter in the summer by requeening. I prefer to rear queens in June, as we have a good honey flow then, and by requeening then we curtail swarming, and also have the hives full of young bees for the late flow and also for winter. I wish to emphasize good stores for winter, as I had an experience in the winter of 1922 and 1923 that I do not care to repeat. We had a flow of honey dew in the fall of 1922 that we were not looking for, and that we did not know we had till midwinter when the bees began to get dysentery. Well, I had to take Hobson's choice and either let them in and let them die or take them out and have them die, so I set them out along about March 1st and left some in the cellar till April 8th, and I could not see much difference; perhaps those set out first were a trifle further along when fruit bloomed. Hereafter, when we get honey dew I will feed about ten pounds of sugar syrup before cellaring the bees ,say about October 1st. With bees well prepared and well protected for winter the winter and spring problems will be nil, as they will build up rapidly if plenty stores and room and protection are provided.

These are the vital points, and with this I will close.

Assistant: Prof. H. C. Klinger, Liverpool, Pa.

FACTORS THAT ENTER WINTER PROBLEMS OF PENNSYLVANIA BEEKEEPERS, by Jas. I. Hambleton, Apiculturist, U. S. Department of Agriculture, Washington, D. C.

## The Value, Cost and Happy Introduction of Young, Strong, Vigorous Queens

Reverend J. B. Hollopeter, Rockton, Pa.

**The Value**—The queen, "the mother of all living" within the colony, Through her the Laws of Heredity operate, making improvement possible. She thus becomes the source of unlimited possibilities for improvement in temper, ease in handling, hardiness, honey gathering, non-swarming, disease resistance, long life, color, etc., the last named characteristic being developed in America faster than some others, perhaps more essential.

Of the three most important essentials for successful wintering,—sufficient good stores, amples protection, and virile young queens—the last named is not the least, especially during the "Spring Management" period.

To save a queenless colony, or for making artificial increase, a laying queen is of great value.

The value, then, of a good queen may range from a few dollars to as many hundred dollars.

**The Cost**—From the laying of the egg until the young laying queen begins her work in earnest, the cost in terms of bee life and energy is greater than most beekeepers think. As a result of the thousands of trips made by the nurse bees, the consumption of pollen and honey, the heat generated and life sustained, and the various things attended to by the bees, there is constant drain upon the life of the colony. Colonies used in rearing queens and bees deteriorate much more rapidly than those used for honey production only.

Certain manipulations by the beekeeper are necessary, such as selecting breeding stock, feeding cell colonies, grafting, placing cells, handling nuclei, etc., work for both hand and head. Not heavy work, perhaps, but exacting because cells will hatch rain or shine. They must be attended to or a battle royal will ensue, and much labor will be lost.

A third element, nature, enters into the cost. Wet, cool weather slows down queen rearing, increases feeding, results in more lost virgins. Dry hot weather may stop the nectar and robbers become a nuisance. When under



the most favorable condition the cost of producing a good queen, commercially, would hardly be less than a dollar.

**The Happy Introduction.**—Here also three elements must be considered, the new queen, the colony seeking the new queen and the weather.

The new queen is strange, has a strange odor, and if from a distance, she is not laying. The colony may be blacks or savage hybrids. Too many old bees, or perhaps a small virgin may be in the colony. The weather may be such that the bees are likely to rob, and being lank and lean they are more likely to ball and kill a new arrival.

Now when these conditions are overcome, pretty close to 100% introduction can be accomplished. When the new queen takes on the same odor as the colony and there is a honey flow, or the bees are well fed, and when the colony is free from all queen cells and virgins, the usual introducing cage plan has given very good results. Several special introducing cages are on the market today, with which successful introduction can be secured. I have known of good results from the smoke method and different other ways. Once in a while there is just naturally a colony which seems bent on killing every queen and queen cell that you give it.

In conclusion, I beg to say that limited time forbids anything other than just a little peep into this subject, but I hope that this much will be sufficient to stimulate further research by those to whom this subject is sufficiently interesting.

BEE DISEASES AND THEIR TREATMENT. Leader: Prof. N. E. PHILLIPS, Extension Apiarist, State College, State College, Pa.

Assistant: Harry W. Beaver, Troy, Pa.

Prof. Phillips has so well covered the technical side of this question that I do not see any need to speak further on that phase. I will, however, talk on the treatment of American foulbrood, with the use of the Hutzelman solution, for this in my opinion is the only solution to the problem; if done carefully the combs will be absolutely safe to use in any health colony. This is a place where "Sam Slops" cannot be tolerated, or the work will be done for worse than nothing.

To test out the treatment I took the very worst foul combs I had, and after treating them I used them as second brood nests on strong, healthy colonies, the result was as nice slabs of brood as you could wish to see.

My next experiment was on diseased colonies. I shook out two at one yard, and four at another into their hives without any frames, and left them for two days to get rid of their honey, but as there was no honey in they built no combs. I filled them up with disinfected combs, and every one was reinfected. I think this was because they held the honey in their sacs instead of using it up. Others that were shaken at the same time onto full sheets of foundation with a catch comb were free from disease.

The idea is to have the bees deposit their honey in the catch comb, and then it can be removed next day by brushing (don't shake); also remove all foundation not drawn out, and the hive filled with disinfected combs, and if you work carefully you will have practically no reinfection.

The best time to treat colonies is just as clover begins to yield; then there is a minimum of honey and a maximum amount of bees. You will find that colonies treated at this time will build up quickly, and will gather almost as much clover honey as a untreated one, but will be weaker for the late flow. I feel very optimistic for the ultimate control of American foulbrood through the Hutzelman solution, as it surely saves a great amount of labor and expense.

ASSISTANT: ROBERT CONN, Roaring Branch, Pa.

Through experience, I have learned that the Macavoy, the Baldrig, and the starvation treatments are not always successful. With the starvation treatment, it is difficult to know when to stop starving.

The following is the treatment used by the author. The queens are destroyed, but the bees are left on the combs until all of the brood has hatched. One queen is left in the strongest colony, the one least affected

with disease. At the end of ten or twelve days the queen cells are destroyed, so the colonies are hopelessly queenless. All the colonies so treated are placed on the one in which the queen was left (about four or five deep). The bees will then clean out the combs and fill them with honey. At the end of the flow, all the combs that are filled with honey, and show no traces of foulbrood, are removed and extracted. Those that are not free from diseased cells are left for the fall flow. Other diseased colonies are then added to ones left, as was done in the first place. The purpose is to decrease the number of diseased colonies, and still get as much honey as possible. After the last honey flow is over, and brood rearing has entirely stopped, those colonies which still show signs of disease are shaken into an entirely clean hive. Two or three colonies are united for winter. All that are to be wintered are given enough combs and honey for their winter needs. Some of these colonies will have foulbrood again in the spring.

The combs that are full, or partly full of honey, are washed twice after they have been extracted. They are dipped in water each time, and are run through the extractor. After the second washing, they are left in the open until they are thoroughly dried. The next season they are used above the queen excluder, for storing extracted honey. Care is taken that none of these combs get into the brood chambers until after they have been filled with honey once and extracted. Those combs which show any signs of disease are melted for wax.

During the extracting season, all the combs from disease free colonies are extracted first, those from diseased colonies last. The entire extracting outfit is cleaned after the combs from diseased colonies have been extracted.*

When only one colony in the yard is diseased, the bees in that colony are destroyed, the combs are treated, and the hive is cleaned.

*This system of treating foulbrood is not to be recommended in general, especially not for those who have not had a great deal of experience with bees.—Editor.

Assistant: Edwin J. Anderson, Ridgway, Pa.

Assistant: Reed P. Merrill, Muncy, Pa.

RECENT DEVELOPMENTS IN BEEKEEPING PRACTICES. Jas. I. Hambleton, Apiculturist, U. S. Department of Agriculture, Washington, D. C.

BEEKEEPING A VOCATIONAL FARM PROJECT. Prof. Willis R. Skillman, Department of Education, Harrisburg, Pa.

COMMERCIAL BEEKEEPING. Leader: Harry W. Beaver, Troy, Pa.

## Commercial Beekeeping

**Leader: Harry W. Beaver, Troy, Pa.**

Beekeeping can be carried on on a commercial scale in localities where a sufficient amount of surplus honey can be secured to pay the apiarist for his work and expenses incurred in the operation of his business.

I would define a commercial beekeeper as one who makes his livelihood out of his bees. I will speak first of the man; to be successful he should be of the wide-awake type, quick to pick up a new idea and just as quick to drop it if impractical; he should have good judgment to handle his bees according to the seasons; he should study his location as to bloom and time of bloom yielding surplus, in order to have his bees at the proper strength to take advantage of the flows; he should not let a bumper crop get away with his better judgment, nor go down in discouragement when the poor seasons come, for they do come as sure as night follows day.

I will put location next. This should be a scope of country where the honey producing flora are evenly distributed and quite abundant.

By this I mean where apiaries could be located about two miles apart in all directions from the home base, with a chance of getting a good crop from each apiary, be they two or twenty. This proximity will cut down travel expense; however, few are so situated, and the average man will



have to hunt locations sometimes many miles from home; but this is not so bad since we have the auto truck. As we are situated in Bradford County I would rather have yards two miles apart, and have less bees in a yard, than have them farther and larger yards, as I do not believe bees fly so far in a hilly country as the old Vets would have us believe. I have had proof time and again that bees do not fly farther than one and a half miles and store much surplus. Some locations here might in flush years support four or five hundred colonies, but take years on an average I think 100 or even 70 would be better for most Pennsylvania locations.

The late E. W. Alexander kept as high as 750 in one yard, but I believe his son now has them divided in three yards. C. F. Hochkstein had at one time 1100 colonies on one location near Mangas, Cuba, but that was an exceptionally good place near the mountains where the ground was untillable and overgrown with honey plants that succeeded each other the year round.

Third comes the bees, which I believe practically all are agreed should be three banded Italians of a good strain, although I think the first cross hybrids are the better honey gatherers, but their temper is not always all that is to be desired.

We will put the hive last, for with a good practical beekeeper on a fairly good location with good bees, the hive does not make so much difference, but would recommend a standard hive, either eight or ten frame Langstroth with full sheets of foundation. I prefer the eight frame, two story hive for my location and system.

Now after getting a good crop of honey, don't throw it away for a song, but look up a market that will pay you a living price; and don't sell retail at wholesale prices, nor wholesale at jobbers' prices. It is things like these that kills the market and makes life weary for the beekeeper.

If you think you must sell cheaply, sell to the jobber in large packages, and save the market thereby from a slump, and give your brother beekeeper a chance at the same time.

Assistant: Edwin J. Anderson, Ridgway, Pa.

Assistant: Charles F. Coombs, Wilkes-Barre, Pa.

Assistant: Chester P. Steinbacher, S. Williamsport, Pa.

Assistant: F. J. Strittmatter, Bradley Junction, Pa.

ADVERTISING HONEY. Walter Severson, Mgr. G. B. Lewis Co., Albany, N. Y.

## Advertising Honey

**Walter Severson, Mgr. G. B. Lewis Co., Albany, N. Y.**

There are several features that are paramount in the advertising of honey to be sold at retail. To have extracted honey in attractive containers, graded as to color, and comb honey in cartoons, graded as to weight. There must be absolute protection of the customer by the maintenance of quality, and by selling through channels of distribution that afford protection to the customer.

The problem of successfully marketing honey in the United States can be solved mainly by education. Many people in our large cities do not know the many ways there are of using honey. The task of educating 110,000,000 people is too big for one man, or small group of men, to undertake. There are numerous ways of advertising honey which have proven successful in the localities in which they have been tried.

Perhaps one of the best ways to bring honey before the public is over the radio, which method has recently been tried out in New York State. This method brings honey before the public in a way that no other method can.

The roadside stand is another big factor in advertising the sale of honey. Thousands of pounds of honey are being sold this way annually.

FACTORS THAT INFLUENCE BEEKEEPING RESULTS. By Geo. H. Rea, Representative, The A. I. Root Co., Reynoldsville, Pa.

IMPORTANCE OF LOCATION, BEES, HIVES, AND EQUIPMENT.

Leader: Geo. H. Rea, Reynoldsville, Pa.

Assistants: Charles F. Coombs, Wilkes-Barre, Pa.; Prof. H. K. Klinger, Liverpool, Pa.; Charles D. Ruth, Emaus, Pa.; Robert Conn, Roaring Branch, Pa.; David T. Hume, Allentown, Pa.

Educational series of lantern slides on beekeeping.

ELECTION OF OFFICERS AND REPORTS OF COMMITTEES.

1925

| 1924 | | | 1925 | | |
|---|---|---|---|---|---|
| Jan. 25 | Cash on hand | $715.23 | Jan. 21 | Cash on hand Mechanics Trust Co. | $881.98 |
| | Dues collected | 153.50 | | Grange N. B. | 11.83 |
| | Int. on sav. acc. | 31.08 | | Paid for cards, etc. | 6.00 |
| | | $899.81 | | | $899.81 |

Jan. 19, 1925 Permanent Accumulative Fund.

| | | |
|---|---|---|
| Mechanics Trust Co. | $881.98 | |
| Grange National Bank | 11.83 | $893.81 |

## Proceedings of the Twenty-Third Annual Meeting Assembled in the Harrisburg Public Library, Harrisburg, Pa., January 20th and 21st, 1926, with Albert T. Keil Presiding.

## Address of Welcome

PRAYER, by Prof. Geo. R. Rea.

**By P. H. Dewey, Master, State Grange**

My father was very much interested in bees. He was the first to get the new boxes around our section. He had a very fine bee house, and made his own bee hives. With the help of the boys, he made some very clever bee arrangements, and was in the market for selling honey. At that time we knew nothing about the foul brood diseases.

The bee industry is just beginning to be realized in this country. The Grange is one of your big brothers in the way of bee-keeping. This industry is very near and dear to us, and is an industry regarded as being worth while to the Grange. The Beekeepers' Association should never hesitate to come to the Grange for help. We stand ready and willing to reach you a free and brotherly hand at any time.

## President's Address

**By A. T. Keil, Mars, Pa.**

It certainly is a pleasure for me to stand before you this year. I would like to see the Association do something during the coming year. One thing would be that I would suggest giving the members more for their money. This could be done by having the notes taken of the meetings of the Association, have them printed, and send a copy out to each of the members. There are a lot of the members belonging to the Association who are unable to attend and who pay their dues. These are the ones to whom the proceedings of our meetings should be sent. We now have about 150 paid-up members and I hope to see the Association grow to at least 200.

Another suggestion I would like to make would be to get in touch with the Forestry Department and put on some kind of a campaign to plant basswood trees and also some shade trees. There are very few sections



where bass wood is left and this is one of the best sources of honey. It would be well for the Association to do something along this line.

## Secretary-Treasurer's Report

**By Charles N. Greene, Department of Agriculture, Harrisburg, Pa.**

STATEMENT OF THE PENNSYLVANIA BEEKEEPERS ASSOCIATION

1925

| | | |
|---|---|---|
| Cash on hand | | $893.81 |
| Interest Mechanic Trust Co. | $20.17 | |
| | 18.04 | 38.21 |
| Grange Na. Bank | .19 | |
| | .21 | .40 |
| Dues Collected | | 148.00 |
| | | $1080.42 |

1926

| | | |
|---|---|---|
| Mechanics Trust Co., Permanent Accumulative Fund | | $941.81 |
| Savings Account | | 107.13 |
| Grange National Bank, Troy, Pa. | | 12.23 |
| Expense accounts | | |
| 1925 Badges and Cards | $9.25 | |
| 1925 Voc. Gold Medal | 10.00 | 19.25 |
| | | $1080.42 |
| Income During Year, Dues | | $148.00 |
| Interest | | 38.16 |
| | | $186.61 |

## My Experience Building an Apiary

**By Harry W. Slegel, Birdsboro, Pa.**

I have had four years' experience in building an apiary, but have really built it up in the last year. In 1922 I purchased my first bees and at that time moved to the country. I got one super full of honey from it.

As time went on I decided that I would like to know more about bees. I had heard of bee meetings and when we organized an Association, I was made President. At these meetings I learned more about bees.

In 1924 I bought two more boxes. This was in the spring. They built up fine and I became more and more interested in the apiary. At the beginning of this year I purchased fifteen colonies and put more of my time on them. That made me a total of twenty-one colonies. Some of them were weak, so I reduced the number to seventeen and went in entirely for comb honey. I watched the bees closely and tried to prevent swarming. I averaged between fifty and sixty sections. I purchased fifty more hives in the fall. I now have seventy-five, but they are too many for my location in Birdsboro.

I would advise anyone not to increase quite so fast because in three or four years' time one can't get enough knowledge to handle so many colonies I may increase later and if I make a go of it I will try to become a real beekeeper.

QUESTION BOX: Will Sac brood discourage the queen in laying?

Mr. H. W. Beaver: There is nothing to discourage the queen.

Mr. Robert Conn: No, it will not.

Mr. Geo. H. Rea: In parts of New York State sac brood has become as serious as foul brood. It destroys the oncoming bees, and it will discourage the queen because the queen lays in response to stimulation. It is now a research problem in Cornell University.

What is sac brood?

Mr. C. N. Greene: Sac brood is that type of disease that attacks the baby bee during its larval stage, and causes its death. It can be distinguished because the skin of the litle bee remains intact and from that derives its name. It is very much like some of the other types of disease. It is not serious in most parts of the state, but if the disease was not cleaned up before it had destroyed large numbers, it might be a real menace to bee-keeping. The watery condition of the larvae is the most pronounced characteristic of sac brood. The Department of Agriculture at Washington, D. C., examines the diseased larvae and the contents are identified. It is all done under the microscope and is easy for them to disseminate the germs that cause the disease. They will do it in a positive manner so that there is no question.

Mr. G. H. Rea: New York State has recently developed the situation in which the appearance of the dead larvae seem to have more the appearance of European foul brood. They sometimes think it is American foul brood. It will seriously lessen your honey crop. Beekeepers often treat the bees for the wrong thing, European foul brood for American foul brood and vice versa. The result is that they usually don't get anywhere.

What should be a fair profit in bottling honey bought wholesale?

Mr. A. T. Keil: A living plus 10%, sometimes more.

## Some Bee-Keepers I Have Known

By Geo. H. Rea, Extension Apiarist, State College, Pa.

In the ten southern states I have visited, I saw most of the outstanding apiaries. I aimed to find out some things that would be of use. The northern beekeepers do not have the right climatic conditions for queen breeding. This started in the North but gradually shifted to the South. Honey production is better for the North. The southern colonies are strong but they have ideal conditions for rearing queens. They have a great deal of rain in the spring but sometimes there is an absolute dirth. The hot dry weather interferes with the industry.

Some of the northern states put a quarantine on shipping bees into their states on combs. The South cannot ship in packages as well so it interferes with the trade. Georgia is developing as a beekeeping state. North Carolina's climatic conditions are fine for bees.

## The Beekeeper's Part in the Production and Sale of Maximum Crops of Honey

By Harry W. Beaver, Troy, Pa.

Bees in their natural state made their home in rocks, hollow trees or other convenient places. Here they would store their honey and rear their brood, and when crowded or when superceding their queen they would swarm and thus increase their species. If perchance man wanted some of the delicious food he would have to drive them out or kill the bees. When man wanted to domesticate the bee he had to furnish it with a home, this he did by giving it a hollow log, later making a straw skep, then the box hive and still later, within the memory of our oldest men, the frame hive.

We are all more or less familiar with the advancement of beekeeping, but I just mention it in this cursory way to get in your mind's eye the fact that man made it possible to harvest big crops of honey without destroying the bees to obtain it. But the hive is not all, it is but one of the factors. The apiarist must choose a location that has an abundance of honey producing plants that will yield a large surplus, also have an apiary site that is well protected from prevailing winds. A windswept apiary is a poor investment. I have had windswept apiaries that yielded poor crops, and



that when moved to a protected spot ten rods distant yielded with the best yards I had.

Requeen when the present queen begins to fail which is every year in some cases. As long as a queen is going strong I let her go. I have known many two year old queens that were as good as many that were six months old, and I believe that these long lived queens breed the same kind of bees, and why not? I think here is one place where our queen breeders could increase our honey crops, and that is by lengthening the lives of our workers.

Look well to the food supply in the fall so that there will be plenty for brood rearing in the spring, for there is nothing that stimulates brood rearing like "Millions of honey at our house."

The manipulation of the hive can also increase the output provided it is done right and at the proper time. Do not let the bees feel crowded and on the other hand do not give too much room as to chill the brood on cool nights. This will retard rather than enhance brood rearing. In other words keep the colony comfortable, and the colony morale at the highest for best results.

Now a word about the sale of honey; for what does it profit a man if he gain a world of honey and lose the sale thereof? Every last beekeeper should utilize his local market to the utmost, charge a remunerative price, not excessive, get together and talk over prices and all sell alike and there will be more honey consumed than if every one has a different price. Advertise your goods and stand back of every sale. Put up a fine article and your trade will increase. In this way tons and tons of honey will be kept off of the main markets, and they in the end fix the price. A good way to arrive at the wholesale price in say five pound pails is to take the present price for clover in ton lots, which is 11c, add 1c for liquefying and pailing, 2c for pail and label and 1c for boxing and shipping which makes them sell at $9.00 per case of 12, and yet I know of so called beekeepers selling honey to grocers in a nearby city at less than jobbers' rate in 60 lb. cans.

It is not the wide awake young man that keeps bees in a scientific manner and markets his product in the same way that ruins the market. He is an asset to the business, and we welcome him to the ranks. It is not the top-notcher that spoils the broth, but the Sam Slops that make life weary.

## Winter Protection in Pennsylvania

By W. J. Nolan, Apicultural Assistant, U. S. Department of Agriculture, Washington, D. C.

In a colony in Nature natural protection against winter weather is afforded. Thus the bee in a hollow tree in the forest does not get the full sweep of the wind. The same is true of the bee in a cave. Further than this the cluster itself provides insulation for the heat produced within it. The efficiency of the insulation power of the cluster is shown by the fact that a difference of 75°F. has been found between the center of the cluster and the bottom board only four and one-fourth inches below.

The colony kept in the modern apiary in thin-walled hives is deprived of the natural protection afforded by the thick tree trunk on top, bottom and sides. It is also deprived of the wind break furnished the colony in nature by the surrounding forest trees. The beekeeper in many regions, in one instance, must make up for the thinness of his hives by surrounding them with suitable insulating material, or by putting them in a cellar. In the other instance, he must provide artificial wind breaks.

The insulating and heat-producing power of the cluster in nature remains with a colony in the hands of the beekeeper. It is in the power of the beekeeper to modify these properties to his own advantage by providing conditions to increase the number of young bees entering the winter season, and by providing those stores which yield a minimum of waste produced on being digested. Thus the size and power of the cluster will be

increased while any tendency to cause unrest within it because of the accumulation of fecal matter within the intestine will be decreased.

The question of wintering is of particular importance in Pennsylvania, the average loss of colonies going into winter quarters during the period from 1915 to 1924, inclusive, according to Federal statistics, having been 16 per cent as compared with 12 per cent, the average for the entire United States. Furthermore, according to the same statistics, with the exception of 1919 and 1922 the annual loss in Pennsylvania for each year of the period from 1915 to 1924, inclusive, has been higher than the average for entire United States for each corresponding year.

## Comb Honey Production

By Frederick Hahman, Altoona, Pa.

We have read much in the bee periodicals deploring the decline of comb honey production, also the possibility of its total abandonment. It reminds one of the phrase coined by the late President Cleveland, during his administration, "Innocuous desuetude," which in plain English means harmless disuse or discontinuance. I have no fear that anything of that kind will ever happen.

Comb honey is a luxury. It cannot be classed alongside extracted honey as a food. Being a de luxe product it must be produced in immaculate condition for the market, to tempt the buyer that is able and willing to pay a fancy price.

The flow of light colored honey, which is the only kind fit for section honey, starts in our state, about the first week in June. Only powerful colonies should be used for section honey. As it is next to impossible to have every colony of powerful strength, it follows that the medium and weak colonies must be run for extracted honey. The ideal status is to have but two kinds of colonies in the apiary, extra strong ones and nuclei. This can be accomplished to quite an extent by skill and good judgment.

The colonies should fully occupy two stories, at least one and one-half stories. They should be reduced to one story at the beginning of the honey flow and the supers of sections placed on the hives. The plan followed is that evolved and advocated by the late Dr. C. C. Miller. It consists of looking over the brood nest, not less than every ten days, for queen cells, and shaking the colony when it becomes necessary to do so. This entails much labor but I do not know of any better plan. The colonies are shaken on frames of comb foundation and one empty or nearly empty drawn comb. The purpose of this comb is to prevent the bees from storing the pollen in the sections.

The supers are placed on the shaken colony on the new stand. The parent colony is gradually brought alongside after a few days. On the seventh day the parent hive is moved to a new location, at a time when the bees are flying to the fields. The returning bees finding their home gone will enter the shaken colony on the old stand, thereby augmenting the working force therein. The removal of the parent hive should be carried out very gently so the worker bees present in the hive will not be aware of the change. They will go to the fields without marking their new location and will readily enter the hive of the shaken colony on returning with their loads. The loss of the working force will weaken the parent colony to such an extent that after swarming will generally not occur.

I use two supers on the colony but at times three are needed and given. It is seldom that I have four section supers on a hive at one time. With the cool nights that are common in our state in June, an insulation of the supers is a vast help and is well worthy of attention. Many schemes have been advocated and tried out, probably the one that has given best service is the telescope cover used with newspapers folded over the hive. They give good protection during the cold nights and are readily removed and replaced. I remove supers promptly by means of the escapes when I see



that about one-half of the sections are capped. The sections entirely sealed are taken out, those partly finished are pushed towards the center. New sections are inserted on the outer side. The supers are then ready to go back on the hive.

I frequently place a super containing partly filled sections on one of the weak colonies that has built up fairly well. The next day I give the bees and all to one of the colonies that has been shaken. This enables one to make good use of the bees where they are needed.

The producer of extracted honey has a decided advantage in the choice of queens to head his colonies. The best of the Italians are at his command. The comb honey producer must have bees that will cap his sections white. It is difficult to find Italians that will do this, in fact they never equal blacks or hybreds. Carniolans possess a number of good qualities for producing comb honey. They are good workers, are peaceable, and cap their honey snowy white. They do not daubt the sections with propolis, but do have one outstanding fault, they just love to swarm. I can manage fairly well with them during the honey flow, by watching the brood nest closely and shaking on the first sign of eggs in the queen cells. During the honey flow in August when there are no sections on the hives the Corniolians cast swarm after swarm, queen cells or no queen cells. The old queens are clipped and I am able to secure them as the swarms come out. I am rearing queens at that time so a number of swarms leave with virgin queens.

I am willing to admit that it may take more work and expense to produce comb honey, but the difference in the final profits is not great. When the crop is ready to be sold, the extracted honey producer must hustle to market his crop, he must advertise, canvass, resort to all sorts of salesmanship, and meet lively and frequently ruinous competition. On the other hand the comb honey producer, if he has produced an A No. 1 crop has no trouble in disposing of his product.

## Wintering Bees in Winter Cases

By Rev. J. W. Bittner, Kutztown, Pa.

The majority of beekeepers do winter bees this way. The entrance is a very important thing. I have followed the instructions of the Department of Agriculture as to the size of the cases, etc. I would advise the use of a strip of wood 1-2 inch square on the sides of the entrance so that no chaff can fall down. I have bored five ½-inch holes for ventilation. If the weather becomes cold, you can fill some of the holes up.

On May 1st the Berks County Beekeepers' Association were having a meeting and I had a swarm before they came. I was advised not to unpack until the weather was fair because a lot of the brood would be lost. I would also advise that the boxes be made well. I picked my own lumber and had the boxes made. They cost five dollars.

## Vocational Beekeeping Projects Sponsored by the Pennsylvania Department of Public Instruction

By Willis R. Skillman, Supervisor, Agricultural Education, Harrisburg, Pa.

There are seven thousand boys and girls engaged in project work in Pennsylvania. All of them have projects and compete in state-wide projects. Your association offered a gold medal to the student who conducted the best project in beekeeping. There were about seventeen boys who started in this contest. These contests encourage boys and girls to do better work than they do otherwise.

The winner of the bee project is Howard Fleming of Corsica, Pa., and the Jefferson County Union Vocational School at Corsica. Mr. North is supervisor of agriculture and principal of the school. He is here today and

will be able to tell us more about the winner of the project who is unable to be here.

Mr. North, Agricultural Supervisor of the Vocational School.

This bee project is the greatest project we have ever had. Howard Fleming deserves the medal. He had to borrow the money to start the project which was $287.37 for eighteen colonies. He started with eighteen and finished the season with thirty-four. He had a little trouble with American foul brood, but he certainly has been learning a lot all the while. I think I might say that one of the greatest things Howard got from the project was the meeting of people and the widening of his own acquaintances.

## Demonstration Apiaries

**By Geo. H. Rea, Extension Apiarist, State College, Pa.**

Last summer we had twenty-two demonstration apiaries in the state. They will be continued this year and three or four taken on. Our object in this kind of work is two fold, to develop beekeeping practice, and to find out the kind of practice required in a given locality. Pennsylvania varies in climate. Our local conditions are so varied that honey values vary.

The project has been put in mimeograph form and will be handed out. There must be a definite outlined plan from spring to fall in regard to swarm control, disease control, rearing of queens, winter packing, etc.

There is a demand for boys' club and club work on the part of the county agricultural agents. I have consented to take on one boys' club in Jefferson County. There are not many people willing to lead and take hold of a project of this sort because it takes too much time and knowledge of beekeeping.

## Vocational Project—Story and Plan

**By Howard Flemming, Corsica, Pa.**

I have always looked forward to a time when I could own a hive of bees. After many visits and talks to an experienced beekeeper, my mind was somewhat changed. I then not only wanted to own a modern hive of bees but had an opportunity to own a whole apiary which consisted of eighteen modern hives of bees.

This was brought about by the beekeeper's confidence, that I could manage many hives as well as one. The same good beekeeper had, at that time, eighteen hives of bees and wished that I might either rent or buy them.

The latter I chose, as he agreed to help me in any way that he could. With the satisfaction that I had relieved someone else of part of his work, I went ahead to gather all the information that I could about the subject of bees in general.

One of my best sources of information was the book, "A B C and X Y Z of Bee Culture," published by the Root Co. Papers, magazines, government bulletins have also been of great help to me and they continue to be a help because they are seasonal and up-to-date.

I studied the different methods of moving bees, then moved them in a truck to my home. After I moved in the spring I examined them to see if they had any disease but only found three hives that had disease. I cleaned up those three so that the apiary is in fine shape now.

Taking off the honey was the best part of the beekeeping I also enjoyed selling the honey and obtained some fine experience in salesmanship. I sold most of my hony right along the Lakes-to-Sea Highway by placing signs along the road.

When I sold all the honey I had, which was around the first frost, I started to think of a way to winter my bees, so as to make them strong workers next year. I bought some celotex and tacked it on the outside of



every hive. I left a super on the hive which I filled with cut straw so as to leave ventilation up through the hive. By doing this I think that they will winter fine.

I hope that I will have as good or better success next year.

(The net profits from the apiary were $673.91.—Ed.)

## Producing Extracted Honey for the Market

**By Robert Conn, Roaring Branch, Pa.**

Proper winter protection with a good location are more important than the kind of bees, winter food, or hives. The most important thing is the location. During fifteen days we have produced five tons and twelve pounds of honey.

Any one can produce a good crop of honey if they have the following:

1—Love for the work.

2—A good location.

3—A good strain of bees.

4—Good queens.

## Experiences of a Beekeeper During 1925

**By H. A. Surface, Selinsgrove, Pa.**

In the first place I must say that I produce only extracted honey, and I am satisfied that I can produce much more extracted than comb honey, and produce it with less fuss, work and equipment. In the second place, it is very important to have the right kind of equipment, interchangeable hives, etc. In each apiary there should be uniform hives and frames. In the third place, I prefer the standard Langstroth, ten-frame hive for both the super and the brood chamber. Another feature, I am thoroughly satisfied that it pays to use full sheets of foundation, not only for economy, which is the first reason, but also for the insurance of full straight combs and for the reduction of drone comb. I have used the new foundation with vertical wiring. There should also be horizontal wiring. This will help to prevent sagging and bulging.

I have been a beekeeper for over twenty-five years. I am a teacher of Biology and Entomology in Susquehanna University. I like bees and keep them as a hobby. I give my spare time to them and am able to learn something new all the time.

We had a good and continuous honey flow, except a little intermission before buckwheat. From twenty colonies I produced over a ton of honey. Some colonies gave me as high as 260 pounds each.

A beekeeper should not be bothered with a whole lot of excess equipment. It doesn't pay to bother with drone traps and queen traps in front of the hive. The beekeeper should not rear drones and should manage to control swarming in such a way that no queen trap is needed. I didn't have one swarm last year. If you keep the bees together and at work you are going to get more honey produced than if you allow them to put their honey in two colonies containing sets of brood chambers and brood. I have found it advisable and profitable to prevent swarming. I made over five hundred dollars and found health, and recreation at the same time.

I recommend going over the hives at least once a week or every ten days and removing drone comb and the queen cells. The rearing of drones is the bees' first preparation for swarming. To prevent swarming the first thing to do is to give room to the queen and the bees in brood chamber and super so that they will not be crowded. A second requirement is to give plenty of ventilation, the third thing is to give shade, and the fourth, requeen. Swarming is to escape adverse or unfavorable conditions. The

queen is kept busy and the colonies are prevented from swarming where there is room and favorable conditions. The queen will lay more eggs than when swarming. Give the queen plenty of room. This can be done by giving her more drawn combs or frames of foundation in the brood chamber.

I did not have any special time to extract during the season. I extracted frequently and when, in any frame, three-fourths or more of the honey cells were sealed. I began the season by feeding abundantly but the best time to feed is in the late fall as this will carry them through the winter and spring. I believe there is brood in the hives of strong colonies every month of the year. I have changed hives (from box to frame) every month except in January and February and I have found brood present in some each month. I found patches of brood as large as my hand on the sixth of December last.

The reasons for feeding in the fall instead of spring are: (1) leaving them be undisturbed and (2) so they will have plenty of food for fall winter and spring. Bees do not fly as far as is generally believed. There was a buckwheat field not far (less than a mile) from my place and only one colony of my bees found that. I made two moves of the bees to pastures. One was to a region of tall white clover (Melilotus) and that was after the white clover flow. The next was to a buckwheat region. After the white sweet clover comes the basswood and sumac. Sumac makes a beautiful honey and I had a fine lot. Basswood produces a lot of nectar. The trees are coming back as second growth which is favorable for beekeepers. I moved the bees to buckwheat. The best way to move the bees to pasture is to prepare a frame for moving which is the size of the hive with wire cloth over it. Set the hive in a telescope cover and nail the wire moving frame over it and carrying it wherever it is wanted. A frame of wire cloth which is the size of the hive gives plenty of ventilation.

Fruit bloom is not the best time to change bees because the brood becomes chilled and killed in early spring and as soon as much nectar comes in there is thin running honey making a muss. The most satisfactory time is in the fall just after the honey flow has ceased.

I had foulbrood for the first time but cleaned it up and do not fear it. Learn the symptoms of foulbrood when you go into the bee business. Strong colonies, made strong by late fall feeding, will help solve the problems of winter and spring conditions. This is an important point.

I also found that in my region the best time to requeen was in July, during the sumac nectar flow, to get strong colonies of young bees, with young queens, in preparation for the buckwheat nectar flow and wintering. This also greatly reduces the swarming tendency during the buckwheat honey season.

## The Bee Louise, Braula Coeca

By W. J. Nolan, Apicultural Assistant, U. S. Dept. of Agriculture,

Washington, D. C.

The bee louse has been known for centuries. During most of this time relatively little was learned as to its life history or habits, its effect on the bee colony, its range, or its manner of spreading when introduced into new territory. New ideas and discoveries on these points within the past few years, however, have given the bee louse renewed prominence in beekeeping literature. Thus Skaife, in South Africa in 1922, followed by Arnhardt in Austria in 1923, furnished some essential points in the life history which had been almost entirely wanting. About the same time, Perret-Maisonneuve, a prominent French beekeeper, launched a campaign in the apicultural press to drive home to beekeepers the danger from the bee louse as he saw it. His efforts in this direction were only given new fuel because Baldensberger, another outstanding French apiculturist, came out strongly with the opposite view.



Almost coincidentally with the foregoing came the discovery that Braula had become established in Tasmania, in spite of the prevailing erroneous notion that it was limited to warm climates. As a matter of fact the bee louse has been known for years in central Europe, where the climate may be called anything but warm. At the present time Braula is found in every continent. Its presence in the United States was made public in 1923, after it had been found established in Maryland. In addition it is known to be in central Pennsylvania, while an item in Gleanings for January, 1926, implies its presence in New York State.

Neither the common name "louse," nor the Latin name "coeca," meaning blind, are strictly applicable to this little animal, if, in the one case, we have in mind bird lice or body lice, or if, on the other hand, by blind we mean the absence of eyes. As a matter of fact, bird lice and human lice themselves do not belong to the same order of insects, while the bee louse belongs to a third order, the Diptera. The latter include common house flies, mosquitoes, and the like.

In Braula there are no wings, and even the eyes have become much reduced, so there is some dispute as to whether they are functional. Thus probably the little creature is blind but its name, coeca, was given originally in the belief that there is no trace of eyes at all. The mouth parts are not of the type found in bird lice or body lice, but are adapted for the curious method of taking food. On the last division of the leg, the tarsi, is a curious structure looking like a comb with a few teeth missing in the middle. This by catching into the branched hairs on the bee's body, enables Braula to maintain a foothold. Braula is redish brown in color, and of such a size that it would take 16 or 17 specimens end to end to make one inch.

Skaife, in South Africa, found that young Braula larvae were feeding in common with young bee larvae on the latter's food. He found as well pupae in cells containing drone pupae. The next year after Skaife published his work, Doctor Arnhardt, who is in charge of the Austrian beekeeping school, announced his discovery of tunnels under honey cappings in which he had found the cast skins of larvae Braula coeca. He did not find Braula developing in the brood nest. This contradiction in the types of development leads Arnhardt to suggest that there may be more than one species of Braula. The study of Braula in this country amply confirms Arnhardt's work.

In making public his discovery Arnhardt published photographs of the tunnels made through the cappings. These are made on the under side. On combs showing to best advantage they often appear as a net work of small light-colored lines, about the width of a pin, radiating in all directions. In this country they have not only been found on sealed honey in brood combs but on section honey as well.

In specimens from Maryland examined at the Bee Culture Laboratory pollen grains were found in the digestive tract, such as might have been taken if the louse stole its food from the mouth of an adult bee while the latter was either receiving food or feeding larvae. Losy described the method by which Braula, standing on the proboscis of the nurse bee, is able to wedge its own mouth parts among those of the bee in such a way as both to cause saliva to flow reflexively from the bee's salivary glands, and to give Braula direct access to this fluid as it comes from the openings of the salivary canals. It is even a simpler matter for Braula to stand near or on the bridge formed by the proboscis of a queen bee, or any bee taking food, and exact its toll as food passes from one bee to another.

The importance of Braula to the beekeeper depends on whether or not his honey crop is affected directly or indirectly by this insect. Since the adult louse is found on queen bees and workers, and its larval form burrow thru the capping of honey, any loss to the beekeeper must come thru the effect of Braula on the adult bees, or else thru the effect of the larvae tunnels.

The regions in the United States where Braula is now known to be present is one in which marked seasonal migrations from nurse-bees to

queen bees and vice versa might be expected to take place. This has been proven actually to be the case, as it is borne out by the experince of the beekeeper in whose apiary the presence of the louse led to the announcement by Doctor Phillips in 1923 that Braula had gained a foothold in this country. He has found that young vigorous queens after being introduced into infested colonies rapidly appear wornout.

In Europe the question of the effect of the tunnels thru the cappings of honey has apparently not been raised. In this country the case appears to be quite different, inasmuch as section honey is a common product here. Beekeepers have learned by experience that the tunnels of Braula larvae thru the cappings of section honey may so damage the cappings as to render infested section honey unsaleable as such. The larval tunnels, of course do not assume the same importance in the case of extracted honey.

What are the remedies? At present, none, if we consider remedies which have been tried out in wholesale manner in commercial apiaries. A number of remedies are recommended in European bee-keeping literature, but these seem of use more to the back-lot or amateur beekeeper than to the man with a thousand colonies. One remedy is to catch the queen, dip a stick in honey, and pick the lice off one at a time. Another method, which seems much easier and more economical of time, is to smoke the queen with tobacco smoke. This method has apparently never been tried out on a large commercial scale.

Since the bee louse is now present in this state and is capable of inflicting damage, the beekeepers of the state have one more pest to fight. The Bee Culture Laboratory of the Bureau of Entomology in co-operation with others interested will endeavor to do its part in devising suitable methods of control.

## Services That May Be Rendered By a County Beekeepers' Association

By Harry W. Siegel, Birdsboro, Pa.

About three years ago my county started an association. We tried to secure copies of constitutions of other counties' associations. Allegheny county was recommended, and we went over their constitution and adopted it as a model with minor changes. The object of this association is to promote the interests of the beekeeping industry throughout the county. The county is such that in giving service they must get closer to the beekeepers than the State Association possibly can.

To build up an association there should be a definite program with a picnic as a part of it. Demonstrations will be beneficial in members' apiaries. If a members does not pay into the association his interest will be obtained if possible by holding demonstrations in his apiary. It is our endeavor to get into different sections of the county, especially in sections where there are many members and get the entire section intersted in the association.

## How the Winter Packing Cases and the Bee Cellar Have Helped to Solve My Winter Problem

By Frederick Hahman, Altoona, Pa.

My bees have wintered out-of-doors for many years. The method I have followed for a number of years, was to pack the colonies in large cases. They were packed with dry leaves on the bottom, sides, and top. Most of these cases were rather crude affairs fashioned from dry goods boxes. In 1924 I built ten collapsible cases of better construction, all alike, with parts interchangeable. All cases houses two colonies and faced southeast. I do not like the four colony cases, after having tried them for several years.



In the fall of 1925 our good secretary came along and with his customary enthusiasm, he talked bee cellar. As a result, a few days later, brother and I were busy digging a bee cellar. It was an arduous task, and took longer to finish than expected. However the day after we finished the bees went in. That was on November 25th. During the winter that followed, I read up all I could find in the many books and journals I possess. I was surprised to read what good beekeepers had to say. Some advocated setting them on their summer stands without any protection, others advocated wrapping the colonies in tar paper. Townsend of Michigan advocated the use of white instead of black tar paper.

I was well aware of the cold frosty and also wintry weather we have during April, and the late frosts in May. I decided that tar or any kind of paper was totally inadequate. I looked at the empty winter cases and that settled it for me. I leveled up the platforms that formed the bottoms of he cases. Then I waited for the maples to bloom. I watched them anxiously like a boy with a new pair of skates who was eager to try them no matter how thin the ice. On Sunday, March 15th, it looked to me as if the tops of the maples were in bloom. Consequently I moved the bees out on the 16th.

The bees had wintered in excellent condition, every colony nearly as strong as it went into the cellar, and about as heavy. I could not tell that any honey was consumed. I must thank our secretary for some of the points he gave when he visited us in October while we were building the cellar. I believe we got it just right.

The day after the bees came out I took six clean bottom boards and transferred six colonies on them, cleaned the removed bottoms and so on until all the colonies had clean bottom boards. The second day I put the cases over them and packed the colonies with dry forest leaves. The colonies stood directly on the floor of the cases with no packing under them, and the hives were placed against the front of the cases so no packing was used on that side. They all faced the south. The packing on top consisted of large sacks of dry leaves. By placing one's hand down on the hives under the leaves, one could feel how warm they were. The bees prospered and grew into rousing colonies by June, and then came the drought to dry up the clover bloom. When the rains finally came, the flow of nectar became bountiful but it was not the quality to make fancy comb honey.

My advice to those who winter their bees in the cellar is; do not throw away the advantage you have gained by wintering in the cellar. When the bees are moved out protect them well. It pays big dividends. I do not feel like advising the building of winter cases and I do not expect to build any more myself. There is a cheap and good plan easily applied which is outlined in the October number of the American Bee Journal under the heading, "The Single Colony Open-Straw Pack." It tells how the Dadants winter their bees.

My final word on this subject is: give your bees a chance to keep snug and warm and they will reward you for it.

## Summer Management of Twenty or More Out Apiaries

By Harry W. Beaver, Troy, Pa.

I think Mr. Greene put this topic in as a joker, or perhaps as a challenge to some of us to speed up a little and get the twenty apiaries.

I have been aiming to be a thousand hive man for quite a few years, but about the time I think I have attained the goal, in steps our old enemy, A. F. B., and cuts down our numbers as well as our ambition. Without this enemy beekeeping would truly be the poetry of agriculture, for what other occupation gets one so near to Heaven and Nature's God as our chosen pursuit, in spite of its handicaps?

I think I will give this talk in the form of a story, telling how we man-

age our apiaries. We have been operating ten to a dozen apiaries for ten years and fourteen for the last three years, and will have sixteen the coming season. To operate a large number of apiaries it is necessary to have an abundance of supplies ready for use at a moment's notice, for beekeeping is a business of psycological moments and if our pets are not waited on at the proper time the opportunity is lost forever. All too many so-called beekeepers wait till the swarm is on the tree or bush before they even think of supplies or a hive to put it in, then the chances are that it will be put in a soap box or a nail keg, and the profits on that colony lost for the season just for the want of a few supplies that their owner knew in his soul he would need.

Study short cuts, get out of the puttering habit, one man besides myself did all of the out-apiary work, and harvested the honey crop, and we did a good deal of extra work besides, such as harvesting 600 bushels of apples and building a bee cellar and making 60 quadruple cases.

To begin with our bees were crowded in the cellars so that it was impossible to keep the temperature down, the bees dwindling badly before being set out in the spring, and using more honey than usual, so that feeding was necessary. Hence we fed about ten pounds per colony three times around, for you will remember, owing to the cool weather the bees got nothing but a little pollen till clover bloomed.

The result of this feeding was two and three story hives full of bees, while our neighbor beekeepers that did not feed had many starved colonies and what bees they had were old. Needless to say we had a good crop and they complained of the poor season. GIVE PLENTY OF FEED.

Now right here is where we treat our foulbrood colonies, as I think there is no better time, as there is very little honey in the hives and the new honey starting to come in makes it an easy and sure job.

Here too is the place where it pays to have young queens, as they will not be so apt to swarm, and will build up strong colonies in time for the harvest, if given the proper stores and room.

By having all our frames filled with foundation and plenty of supers, and all diseased combs disinfected we can give the bees our undivided attention.

PREPARE PLENTY OF SUPERS.

In our system of management it is necessary to visit each apiary every ten days during the honey flow. This means working two apiaries a day, allowing for Sundays and an occasional rainy day. We run the colonies with two story brood nests till about two weeks before the cessation of the honey flow when the queen is put below an excluder in the lower story. This allows the brood to hatch in the supers before extracting.

Ten days after putting the queens down it is necessary to destroy the queen cells in the supers, although sometimes we mate nuclei and use the best cells, letting them mate in the nuclei and building up to full colonies with frames of brood after the honey flow from clover.

The extracting is done at the yards. We move the outfit from place to place, and haul the honey home in kegs. The extracting is hustled along to get it out of the way before buckwheat begins to bloom which sometimes starts August 1st. We do our requeening along thru the season as occasion demands or as we have good cells. We give each colony a thorough examination in August when the buckwheat flow is on, and do considerable requeening then, also treat any cases of disease that may show up.

It is during this month that we prepare the bees for winter, as there is nothing more done to them in the way of manipulation after this month, except to see that there is plenty of stores left in each hive when the buckwheat honey is taken off. We are usually thru extracting buckwheat honey by the first week in October, when we clean things up and get ship-shape again after the rush of extracting. We do our honey pailing during rainy days and off days. With our outfit we can strain and can 3,000 lbs. per day in two, five and ten pound pails.



Our bees are taken to the out apiaries in March and April, and we bring them home in late October or early November. Those that are to be wintered out doors are left where they are and we hope to get them packed by November 20th or earlier. We are wintering in quadruple cases and double brood nests for the first time this winter. On account of extra work we did not get the bees all finally in the cellars until the middle of December. I will tell you next winter how they came out.

Beekeeping is a problem, and here is the test of it.
He is the winner who makes the best of it.
Speaking in confidence, yea, here is a burst of it.
Men have gone busted thru getting the worst of it.
I am not sure, but what I have had of it,
We often get the worst, which is sometimes the best of it.

## Breeding Queens at Twin-Dell Apiary

**By H. W. Lauver, Middletown, Pa.**

There are bees from the same queen that may be entirely different. I started about fifteen years ago to breed queens. I bought a strong queen from a man in the west and put it in a colony and it began to dwindle down, but it was not diseased with foulbrood. I was advised to go to Geo. H. Rea so I bought one from him. I raised enough from this queen to requeen my whole yard. I then started to advertise queens for sale. Everybody wanted leather-colored queens which would be yellow. I wrote to the A. I. Root Co. and bought a queen for three dollars. I bred from her and she produced some nice queens and bees. I then started to advertise again. More orders came along than I could fill. I bred from one queen for five years.

I have received some very good recommendations for the queens I sent out. During my five years of practice I have bred largely for color. I have also tested my original stock by running them thru a honey flow to find out which were the best honey gatherers.

## Beekeeping Practice During the Most Important Season of the Year

**By W. J. Nolan, U. S. Department of Agriculture, Washington, D. C.**

Within the past few years it has been more and more generally recognized that some of the most important preparations for any season's honey crop must be made in the latter part of the preceding year. This is because of the fact that the bees wintered over must all be reared during this period. The more of such bees the better, because on them, other things being equal, depends the rapidity with which the colony builds up in the spring. This rapidity of building up becomes doubly important in regions of early honey flows.

Conditions within the hive making for brood rearing during the period of initial expansion may be likened to a charge of explosives set to go off at a certain moment, the time depending on weather conditions, and the force of the resulting explosion being definitely predetermined by the provisions made in the preceding season to give the colony the conditions most favorable for the purpose.

Among some of the most important of these provisions which are within the power of the beekeeper to provide before winter sets in are: a prolific queen, sufficient bees for wintering over to meet all brood rearing requirements in the spring, proper insulation, sufficient worker brood cells for the queen in the spring, and sufficient stores of good honey both for winter and for spring.

## New and Unfinished Business

Dr. H. A. Surface. I think that the beekeepers are not getting the right amount of help from the state that they should. Some of the counties get help and the others are left alone with no assistance whatsoever.

Mr. Charles N. Greene. We have been trying to put on a campaign (clean up) for some time but do not as yet have the funds to do so. It is not a matter of willingness on our part, because we are willing to do all we can, but it is matter of funds which we do not have in order to carry the work that we would like to do.

It was moved by Dr. H. A. Surface and seconded by Harry W. Beaver that the resolutions committee ask for at least $30,000 for bee work in the state. The motion was carried.

It was moved by Dr. Surface and seconded by Mr. B. F. Forsythe that a committee be appointed to look into the matter of "Grading Comb Honey and Tentative Rules by E. L. Sechrist, Associated Apiculturist, Bee-Culture Investigation." The motion was carried.

It was moved by Dr. H. A. Surface and seconded by Harry W. Beaver that the Resolutions Committee ask for a law against the spraying and dusting of fruit trees while in bloom. The motion carried.

It was moved by Frederick Hahman that the association retain the same members on the State Council as last year, namely Mr. Charles N. Greene and Mr. Willis Skillman. The motion carried.

## Election of Officers and Reports of Committees

### FINANCIAL STATEMENT 1926

| | | |
|---|---|---|
| 1925 | | |
| Jan. 21 Cash on Hand | $893.81 | |
| Dues Collected | 148.00 | |
| Int. on Savings Account | 38.61 | |
| | | $1080.42 |
| Jan. 20 Cash on Hand, Mechanics Trust Co. | $1048.94 | |
| Grange National Bank | 12.23 | |
| 1925 Exp. badges, cards, etc. | $9.25 | |
| 1925 Voc. gold medal | 10.00 | 19.25 |
| | | $1080.42 |
| Jan. 20, 1926 Permanent Accumulative Fund | | |
| Mechanics Trust Co. | $1048.94 | |
| Grange National Bank | 12.23 | 1061.17 |

## Proceedings of the Twenty-Fourth Annual Meeting, Assembled in the Harrisburg Public Library, at Harrisburg, Pa., January 19th and 20th, 1927 with Albert T. Keil, Vice-President, Presiding.

PRESIDENT: Geo. H. Rea, Specialist in Apiculture, Ithaca, New York.

PRAYER by Prof. H. A. Surface.

ADDRESS OF WELCOME, by C. J. Jordan, Secretary of Agriculture, Harrisburg, Pa.



## President's Address

Albert T. Keil, Mars, Pa.

I am sorry to announce that our President, Mr. George H. Rea, was not in a position to attend; hence, I have been asked to preside in his stead. I know he would have enlivened the meetings very much if he had been present. I will not attempt to give a lengthy talk.

From all reports the honey harvest of 1926 has been very short throughout the state of Pennsylvania, and like all other lines of industry it is getting to the place where it is the survival of the fittest. If practically no attention is given the bees it will not be long until the beekeeper will be without bees, and therefore no beekeeper.

There was a time when all that was necessary to do to obtain choice fruit was to plant fruit trees, and in due season there would be fruit in plenty, but not so now. It is the same with the bees.

I am sorry that the proceedings of former meetings have not been printed and sent to the members, but hope that before another year this may be done.

We will now have the Secretary-Treasurer's report.

## Secretary-Treasurer's Report

By Charles N. Greene, Department of Agriculture, Harrisburg, Pa.

## Beekeeping in a Bucks County Commercial Orchard

By Charles D. Ruth, Emaus, Pa.

I have been keeping bees in the orchard of Beckenshield and Weinberger for the last four years. This orchard contains ninety acres in one block.

The first year I kept seven hives in one corner of the orchard, and the benefit was apparent, as more apples set in that part of the orchard than in the remainder. The firm requested me to move in more bees for the following year of 1925.

I put in more bees, putting them two hives to every seven rows of trees and the same distance apart in the rows; again the work seemed fruitful.

In 1926 I put 90 colonies in the orchard, the year being late for fruit bloom, the trees set fruit very heavily, and the firm spent over one thousand dollars in thinning fruit, while orchards that had no bees directly in the orchards had less fruit set; but had enough so that they did not have to thin it, so that no gain can be credited to the bees; but on the other hand the cost of thinning might have to be charged up to the bees.

The bees were left in the orchard all summer, and although all kinds of work was going on all summer, such as spraying seven times which is the rule here, and harrowing and disking, no one was molested by the bees.

In the fall of 1926 there were over one hundred pickers employed, and as one picker was heard to remark, "Bees don't sting this month."

In the spring of 1926 it was decided to build a modern bee cellar on the orchard site, the cost and problem of building to be assumed by the firm as an inducement to the beekeeper.

The cellar was finished in time for the bees to be put in at the beginning of settled cold weather, and are now taking their long winter's nap.

## Production, Care and Sale of Extracted Honey

By Harry W. Beaver, Troy, Pa.

Most of us know the fundamentals of producing extracted honey, so I will not go into detail, but simply mention the main points, such as having strong colonies at the beginning of the flow, and having plenty of supers, to give the colony plenty of room to store the nectar without slowing up the field force; for we have found out that when there is a heavy honey flow, and super room is short they will slow up gathering till they can evaporate and store what they have gathered, even if the cells are not quite full. Plenty of room gives the bees a chance to spread the honey out, which allows quicker evaporation; also gives room to store the crop so that there will be no need to extract till the end of the flow, thus allowing more time for ripening the honey.

I do not think anyone cares for a thin, tasteless product that has been extracted before it was fit, and then exposed to the air in an attempt to evaporate the excess moisture.

The aroma also escapes when honey is exposed.

We always put the honey in 160 pound kegs as soon as extracted (we extract at the out yards) and it is kept corked tight till we put it into pails; which we do usually before it candies. It is an easy thing to keep honey that has been well ripened. All that is necessary is to have a dry room, and keep it well sealed. As I said, we pail our honey before it candies, for the reason that it saves time and does not have to be heated so hot, for heating impairs the flavor. We do not heat above 120 degrees F. and hold it there for about two hours; then strain through two thicknesses of cheese cloth, which removes all fine particles of wax and pollen, if any.

It is then put into pails and sealed up while warm, with the friction top, and if kept at an even temperature, will stay liquid for six to eight months; if the temperature varies very much it will candy sooner.

For heating we have a tank with a water jacket, which holds 1400 pounds of honey. We heat with steam, and watch closely so that it does not overheat, for the volatile oils that contain the aroma are easily evaporated and the delicate flavor is gone, and the honey is flat to the taste, and in the case of buckwheat it gives a strong flavor something on the caramel order.

The sale of honey; I wish I was a good salesman, but I think the average beekeeper is about the poorest salesman of any group that I can think of.

Here is a conundrum. Why do a lot of beekeepers sell honey, by the five pound pail, cheaper than they could get it in sixty pound cans by the carload? You don't know? Well, I do, it is pure philanthropy. They want the public to have the purest and best of sweets at corn syrup prices. They think nothing of getting a profit for their work, and are willing to sacrifice the profit of their brother beekeepers who perhaps may be in the business for a living.

Recently I found a store in Elmira, N. Y., selling honey in five pound pails at 50c per pail retail. I asked the privilege of examining it, and found it to be first-class honey, but poorly strained. The proprietor stated that he bought all the man had, which was 110 pails at 40c per pail.

Ten years ago Elmira took very little extracted honey till several of us larger beemen developed the market; then during the war the government advocated raising extracted honey to increase quantity, with the result that all beemen that had a few colonies raised it, and then didn't know what to do with it, and just dumped it on the market for any old price that was offered to them. Well you know what happens then. Everyone cuts under the other till there is no set price, and the market is demoralized.

I think a fair way to arrive at a price is to take the ton lot price as quoted in the market reports, add the price of the package, and a fair profit for packing and selling, and if you retail it add the dealer's profit for your



work of retailing. This keeps things as they should be, on an even plane, and I really think the consumer will eat more honey if the price is stable, even if a little higher, for the reason that he will buy a pail and be eating it, instead of losing valuable time shopping around hunting it at a lower price.

If one man retails at the wholesale price, another will offer honey at jobbing prices to make a sale; result, demoralization of the market, and nobody sells. Instead of cutting prices, let's push sales to the limit by educating the public to the high food value and healthfulness of honey, and sell quality instead of price.

To sum up, offer a well ripened product, in a neat package, strained clean, sealed right, ask a living but not exorbitant price. Don't undersell to make a sale, but talk your customer up to your price.

Honey has a place of its own, and we must educate the public to recognize its food value.

## The Langstroth-Root Memorial Meeting

Elmer G. Carr, Deputy Bee Inspector, Pennington, New Jersey

The Root-Langstroth Memorial Meeting was held at Medina, Ohio, September 21-23, 1926. A Chautauqua tent capable of seating three thousand was erected adjoining the Root Co. factory. A registration tent, ably managed by Mr. Babcock, was nearby.

After registering, a guide was furnished to show each visitor his lodging place. Apparently some care had been used to arrange for congenial room-mates. It is doubtful if ever before a crowd had more done for it to insure its comfort. Surely my every wish was gratified, and I have reason to believe all fared as well.

Mr. F. B. Moore on behalf of the Ohio Beekeepers Association welcomed the visitors. This was followed by H. H. Root on behalf of the Root Co.

Dr. Sturdevant then spoke on the fundamentals of disinfection of American foulbrood combs, stressing the importance of thorough work, and the uncapping of every cell in a comb.

I then gave an outline of the work in New Jersey in using bees in orchards. I showed that we are spending in New Jersey about seven thousand dollars annually for bee work, about half for inspection and extension and one-half for experimental and research. Because of this comparatively large expenditure we are extremely anxious to prevent reinfection of cleaned up areas by the importation of anything which might bring in disease.

Penn G. Snyder gave some of the problems which the Porto Rican beekeeper is obliged to solve. Two prominent ones were getting and retaining help worth having and combatting ants. In Porto Rico the hive is attacked by a wood tunnelling ant which often so tunnels through the wood that the hive will fall to pieces when an attempt is made to move it.

On Tuesday H. F. Wilson spoke of A. I. Root's work in practical beekeeping. It is rather surprising to learn how many of the features of present day beekeeping were developed by Mr. Root. This was followed by Dr. Phillips on A. I. Root as an investigator. Those who have access to the early volumes of Gleanings in Bee Culture will see that Mr. Root was constantly experimenting. It is said that he conceived the idea of extracting both sides of the comb at one time and built an extractor based on that idea. It is possible that the only reason that it failed to work was the lack of sufficient speed continued over a sufficiently long space of time.

The next feature programmed was a tour of the Root factory. The visitors were arranged in groups with a guide and shown through the factory.

In the evening E. R. Root spoke of his work on the Chautauqua circuit. He showed that this was a good advertisement for honey and cited cases

where after the Chautauqua has visited a town the stock of honey in the groceries was quickly cleaned up.

This was followed by everyone telling his name, his official or business connection and something of the extent of his beekeeping.

The Wednesday morning session was presided over by Mr. Kohn. The first speaker was J. E. Crane, who gave a sketch of beekeeping seventy years ago. When we are reminded that beekeepers at that time had no smokers, no foundation, no extractors, no movable frame and practically no literature, it causes us to think that beekeeping in the olden days must have been fraught with many difficulties. It also might well cause us to feel grateful for what the pioneers have done to make our work with bees more pleasant and profitable.

Mr. Demuth then spoke of the new beekeeping. The burden of his discussion was new queens, the food chamber and packing.

Training for research and teaching in beekeeping was next discussed by Dr. Phillips. He mentioned some of the sciences which have been given but little attention by beekeepers, but which he considered essential in locating apiaries where they would be most profitable. One of these was geology.

Mr. Hambleton of the Bee Culture Laboratory then spoke of the activities of his office.

Mr. Gooderham spoke of the development of beekeeping in Western Canada. He showed that the nectar resources of that territory are immense and that although wintering is a great problem, the packing bee business is overcoming that handicap.

The Wednesday afternoon session was the memorial meeting in honor of Langstroth.

Miss Nails, who has done an immense amount of work in collecting information relative to Langstroth's work, gave a rather touching tribute to him. This was followed by C. P. Dadant, who spoke of Langstroth's writings relative to bees. As visible proof of this there was shown at the meeting a journal in which Langstroth had recorded his bee experiments. This was about ten by twelve inches, and at least three inches thick.

This journal, at this meeting was presented by Hr. Cowan, grandson of Langstroth, to the Cornell Library.

Wednesday evening Dr. Phillips gave an account of his trip among the beekeepers abroad the past summer. I left Mr. Barclay while I went to hear Miss Barber of the Kellogg Co. give a lecture on honey and a demonstration of honey cooking.

Tuesday morning Mr. Eckert spoke on the use of a scale colony. At this time the rain on the tent roof was such that but a small part of what was being said could be heard. The most striking of Mr. Eckert's observations which I was able to hear was the considerable loss occasioned by manipulation of a colony during the honey flow. However, Mr. Eckert's manipulation was such as to produce a maximum of disturbance as he removed all combs from the hive and shook every bee from the combs.

Mr. Rea showed the use of the demonstration apiary in extension work. He contended that this was the only way to get a worthwhile test because if left to the beekeeper he was prone to so modify the schedule as to upset the program.

Mr. C. P. Dadant then spoke on popular errors regarding bees and honey. He mentioned a number, such as bees stinging fruit and granulated honey being adulterated with sugar.

Although not on the printed program, R. H. Kelty of Michigan and Prof. Jarvis of Ontario spoke of their work in disease control. Mr. Kelty said they were not paying any attention to the talk about diseased honey—they were going ahead cleaning up American foulbrood with fire, starting at the upper part of the State.

Prof. Jarvis said he was a pupil of McEvoy, and followed his shaking



plan for American foulbrood control, until he was convinced that no progress was being made. Since that time, something like three years ago, they had burned something like three thousand colonies of diseased bees. They were working on the area clean-up plan. Like Kelty he was not bothering about the diseased honey talk.

In the afternoon Huber Root spoke on honey publicity. The burden of his talk seemed to be publicity regarding diseased honey. He said his company had bought honey on the Coast at a price considerably below the market, because the producers feared certification.

E. L. Secrist spoke on grading honey.

The last speaker on the program was Harold J. Clay of the Bureau of Agricultural Economics, Washington, D. C. He spoke of the semi-monthly market reports which were being issued for honey. These may be had on request.

Mr. Clay said that it is very desirable to have more persons reporting on honey markets and beekeeping conditions throughout the country and asked for such.

A subject not programmed, which may be of interest, was a meeting on the side to form an organization which it seemed might supplant the American Honey Producers League.

A representative gathering of about twenty were called together one day and this subject was discussed at length. E. R. Root and C. P. Dadant expressed themselves as being in favor of getting behind the League and making another effort to have it function. No definite progress was made, and the gathering separated to meet again the following morning. This was done, and to get a vote on the subject a motion was made that the North American Apis Club be formed and that Mr. Hambleton be made a committee to work it up.

At the meeting of the American Association for the Advancement of Science held in Philadelphia the latter part of December this club idea was again discussed at two sessions, but did not appear to be favored generally by those present.

## When Does It Pay and When Does It Not Pay to Requeen?

By Rev. J. B. Hollopeter, Rockton, Pa.

It pays to requeen, when you can replace a poor queen with a good one, or a good queen, with a better one, at the right time, and in the right way. It does not pay to requeen with inferior stock at any time, nor with good stock at the wrong time and in the wrong way.

At the close or just before the close of the main honey flow, or during a fall honey flow is the ideal time to requeen.

It is poor practice to requeen at a time when every egg means a worker for the harvest to come.

Requeening for improvement of stock or for breeding purposes can be done at the most suitable time. Requeening can be done profitably at the time of making increase.

Some folks still think "pigs is pigs" and "bees is bees," thus ignoring the universal law, that improvement comes by continued selecting and breeding from the best, and deterioration comes from doing nothing.

All things, men and bees, wheat and potatoes, poultry or cows, tend to revert to type, unless acted upon by an outside source with continued intelligent action. This reminds me of a beekeeper that told an inspector that he had Italians, he had bought an Italian queen some ten years before, and once an Italian always an Italian, and this included several other colonies as well.

It pays big for the commercial honey producer to requeen annually.

It pays for any beekeeper to frequently put in new blood from vigorous

well bred stock, full of vim and vitality.

The world has never before seen such a wonderful advance in knowledge along all lines, and alert, aggressive, keen minds are at work producing better autos, better machinery, better pigs, better cows, and last but not least better bees. With high pressure management, and almost perfect brood combs and ample room, a queen today lays her tens of thousands of eggs, whereas yesterday it was only thousands.

Chickens now must lay high priced eggs in winter, and cows are no longer tolerated that do not pay their board. Even so bees must today not only pay for themselves but keep their owner as well. A few pounds of honey in a box placed on top of a box hive yesterday, but today "skyscraper" colonies are not uncommon and a look through a bee supply catalog of today reveals a well nigh ideal modern, improved equipment, enabling beekeepers to produce and handle honey by the carload.

All this improvement in equipment and management calls for a like improvement in queens and bees.

It pays to replace inferior or worn out queens with young, vigorous ones from stock tested out for honey gathering qualities. Requeening thus does two things. It puts a young queen at the head of the colony, ready for heavy brood rearing in the spring, and at the same time it enables one to improve his strain of bees.

Profitable beekeeping requires that bees produce surplus honey, and three factors are necessary. The man, the location, and the equipment and kind of stock.

When great stress was laid on beautiful queens and golden bees, and breeding from light colored stock was continued over a number of years, the Americanized Italian bee became much lighter in color than the native bee of Italy. By continued selection and breeding for high standards in honey production, it is fast becoming true that the American-Italian bee of today is a much superior honey gatherer to her ancestor, and increasing yields testify to the queen's part in this increased yield.

Keeping the fact in mind that continued selection and breeding from the best will pay in better bees, always weed out the inferior, replacing with better stock from your own apiary or from another having better stock. Step by step improvement will be noticed in the honey yields.

Considering the amount of time, experience, and labor necessary to produce improved queens, it usually pays better to purchase untested queens from reliable breeders.

However, like hive making, wax extracting, etc., the true beekeeper likes to try his hand at about every thing pertaining to beekeeping, even to writing a book.

This reminds me of a certain Britisher who had returned home after his first visit to the United States, told the following story of an American mechanic applying for a job.

Said the employer: "Are you an all-round man; a thoroughly trained mechanic?"

"Oh yes," the applicant assured him. "I've had six years experience in the Ford works."

"And what did you do all that time?"

"Well," said the man, "I screwed on nut 467."

Yours for bigger, better queens, mothers of a hardy, long-lived, improved honey gathering strain of bees, that will work for their board and board their owners.



## Rearing Queens That Meet Exacting Tests

Wm. H. Earnshaw, Bridgeport, Pa.

As I remember hearing the dean of queen breeders, Mr. G. N. Dolittle of Borodino, N. Y., say that the key to successful beekeeping was a colony headed by a good young queen. It is a pleasure to work in an apiary where the colonies contain quiet, industrious bees.

To produce queens that meet exacting tests, the males should be considered, as this is fully as important as the parentage of the queen.

As drones must be at least three weeks old to mate queens, the beekeeper should select a colony having the above requirements, and about apple blossom time put in about three drone combs, natural built, and feed the colony regularly to induce the rearing of drones as early as possible so they will be ready when needed, and in the meantime use the uncapping knife on the drone brood in the undesirable colonies.

To secure a good breeding queen, the apiarist should keep a record of his colonies, selecting the best one showing the following good qualities: good wintering, good honey gatherers, quiet on the combs and giving the apiarist no trouble in the apiary.

When time to rear queens, make a colony queenless to get a supply of royal jelly, and when a sufficient supply is secured, prepare to start the cells, as follows; the colony that is to be cell builder should be fed liberally for about three days, so they will be what I call fat bees having lots of larval food, then put them in the swarm box and leave about five hours before transferring the larvae to the cell cups.

In grafting the cell cups, the operation must be done in a warm light room and the cells kept covered with a warm damp cloth until you can put them in the swarm box. Do not leave the cells in the swarm box over twenty-four hours. They can then be examined and you must use your own judgment as to when they are ready for the cell building colonies. These colonies must be fed about a quart of honey or sugar syrup a day till the cells are finished.

I prefer three frame nuclii for the queens to hatch and mate in. These must be made up the day before the queens are due to hatch, and must be fed before the cells are put in or they will be destroyed.

Always place the cells in the center of the nucleus, also be careful that there are no unsealed larvae or eggs or your labor will be all in vain.

You get better queens if you raise them than if they have been thrown around in the mails. Also in introducing into colonies that you wish to requeen, you have no trouble to introduce a laying queen.

More apiarists should raise their own queens, thus insuring longer lived queens.

## Queens and Queen Rearing For the Honey Producers

By Frederick Hahman, Altoona, Pa.

The honey producer should endeavor to head his colonies with vigorous queens. Naturally, a large percentage of young queens possess this desirable trait to a much greater extent than older queens; hence many beekeepers requeen their entire apiaries annually. This method may be a safe average one, but results in the displacement of many a fine queen with a younger one whose only merit frequently is her youth. To obtain maximum results from every colony they must have vigorous queens; if they are not, they should be gotten rid of whether they are old or young.

One should not go into winter quarters with failing queens in his colonies. Toward the latter part of July is a good time to rear a goodly number of young queens. The best of queens can be produced only during a

flow of nectar; as that is generally absent at that time of year, feeding must be resorted to, and it must be liberally applied to obtain best results.

With a plentiful supply of young, mated queens in nuclei, the beekeeper is in a position to replace all queens not up to the standard.

In early spring when maples are in bloom is the time to ascertain if every colony has a queen, and whether good or poor. Colonies with plenty of workers going and returning laden with pollen can safely be put down as having queens. Those which are not busy had better be looked after to make sure. Choose a balmy forenoon to look into the hives. If the colonies have been wintered in the cellar, work fast but gently; if the bees are resentful, blow a little smoke over the frames, but not down on them or in the entrance; draw up a frame where the cluster of bees are, glance at it to see the eggs; and close the hive as quickly as you can. If no eggs were seen, mark the hive for a future and more thorough examination. Never lift up a second time, one ought to be able to judge at a glance on which frame the eggs ought to be.

Let me again emphasize the fact to be quick but careful. Cellar wintered bees are prone to kill their queen when disturbed. It is most distressing to have that happen to the one you have picked for a breeder.

Outdoor wintered bees are different. I have never known them to kill a queen after being examined. I suppose the advanced stages of brood they have accounts for the difference in behavior.

If the colonies in which no eggs were noticed prove queenless at the next examination, unite them with a queen-right colony. We frequently read in the Bee Journals that the uniting of colonies in the spring is practically a waste of time. That is not true if the uniting is done at this early stage. These queenless bees are a vast asset to the colony they are given to. If the uniting is done about the time of fruit bloom I will agree that it is almost a waste of effort, because the bees from the queenless hive are almost worthless by that time.

Have your apiary in such shape that every colony counts, whether you have three, a hundred or a thousand.

Every honey producer should endeavor to raise at least some of his queens. I believe that after he has mastered the art, he will rear the bulk of those he neds. Every owner should purchase at least a few queens every season from some reliable breeder, and he need not go out of his state to procure them, for we have queen breeders right here at home, than which there can be no better found, and the stock they furnish is of the very best.

I will not waste time in describing methods of queen rearing in common use, except to refer to them casually.

The best plan is that of grafting larvae into artificial cell cups. It is most remarkable that the average honey producer regards this as a most difficult operation, requiring much skill and training to master it. However, such is not the case. The requisites are good vision, a steady hand, a few inexpensive tools that will last a lifetime, a quantity of artificial cell cups, that cost about a dollar per hundred, and last but not least a good queen rearing text book. This latter is not needed if the novice has an opportunity of watching someone that knows how.

The best method I know of, and one that I have practiced for years, is the one described in Dr. C. C. Miller's "Fifty Years Among the Bees." It is most simple, and the best of queens can be raised by following that plan; it requires no tools, no steady hand, no keen vision, just a trifle of good common sense.

The chief reason for rearing queens of our own, is that we can rear from the queen that suits our particular style of apiculture best.

The large honey producer can send his best queen to a commercial queen breeder and have his queens reared from her. The small beekeeper cannot do that, but he is standing in his own light if he fails to rear from her for himself.

Many small beekeepers think that the queens they might rear from good



stock, will only produce hybrids, and consequently allow the bees to rear queens ad libitum; in this way they surely succeed in rearing hybrids, and the poorest hybrids at that.

If the apiary is requeened entirely with queens reared from a mother of good Italian bees, for two years in succession, there will not be a single drone in the apiary that is not a full blooded Italian, even if a number of the queens prove to be mismated. After that, unless you have a neighbor living nearby that has poor stock, it is pretty smooth sailing to have nearly all queens purely mated, who will produce improved honey gatherers, that will secure a larger crop of honey.

## Why, When and How to Requeen

By W. G. Lauver, Middletown, Pa.

When you come to analyze this subject, we might say that when to introduce queens suggests why, and when and why would suggest how.

We find a colony that needs a queen, the reason why, is that it is queenless. Such a colony, if no fertile workers have developed, may have the queen introduced safely by the nailing cage method, as a rule introducing instructions accompany each queen or batch of queens when sent by mail. Those if followed should be successful. If fertile workers have developed, then as a rule it is best to introduce a virgin. When we say that a colony should be requeened in May, you may ask why, and the answer is that the queen is defective because she is not doing the work she should be doing at this time of year. When we say that a colony should be requeened in August, you ask why, and the answer will be that that is the time for general requeening. There are several conditions under which a colony should be requeened as soon as discovered, one and one often hard to detect, until too late, is one whose worker bees are short lived. Such a colony can often be diagnosed by noting the large amount of brood and gaining very little in numbers. A colony of this kind uses a lot of honey to raise a lot of bees that live but a short time for field work. Such a colony should be requeened at once. The regular mailing cage method may or may not be successful in introducing a queen to such a colony.

Another kind of queens we have in mind is one that maintains a small brood nest and never gets to be very populous. Such a queen should be replaced as soon as discovered. The mailing cage method will be successful in a colony of this kind. There are queens similar to the last named with the exception that they develop a large brood nest during a honey flow, only to have a large amount of bees on hand after the flow is over, simply to consume what little honey the few bees that were old enough for field workers had gathered. If the colony is fed and carried over to another year she will as a rule duplicate her former routine.

Another queen that we have no fancy for, is one where brood is scattered through all the combs, having empty cells, eggs and larvae in all stages and never a solid frame of brood, indicating that the queen lays many eggs that never hatch. This colony can be safely requeened by the simple mailing cage method. We also find queens that maintain comparatively small brood nests and with it produce strong colonies of bees. When we see it we wonder if a swarm from another hive has gone into this colony. We hesitate to requeen a colony of this kind even in general requeening.

When we find hybrids, and so-called hybrids, and blacks, the ones that know how to use their stingers, these if hustlers should not be requeened till after the honey flow is over, if honey production is the sole object. The best time to requeen these last named colonies is in August, and since it is rather difficult to requeen very strong colonies with safety to the new queen. (It is not always what we consider a good or a poor queen that makes it easy or difficult to introduce a new queen safely, but all depends on the condition of the bees. As we get to understand the language of the

bees better so also will our success in introducing be better.) Since a strong colony with good honey gathering propensities is all we want in our colonies during a main honey flow, we should not try to introduce a queen into such a well organized colony until the honey has been all gathered, then if we want better blood in our colonies, and as they are not working anyway, a little disturbance will not affect them at this time, for while such a strong colony will not readily accept a new queen we would recommend making the colony queenless for about ten days, then cut out all queen cells, after which introduce a queen by the common mailing cage method. Some beekeepers are of the opinion that it does not pay to try to requeen as most of the queens are lost and the bees raise their own queens, and nothing is gained. Our experience is that most of the weak colonies accept their queens, while most of the strong colonies kill the new one and raise their own.

It is not as important for the honey producer to know the condition of every queen in the yard as it is for the queen breeder. The queen breeder must be alert and ascertain the condition of all his colonies in regard to the queens and the offspring of the same, and that he does not allow drones to fly from poor stock. We use the utmost care at the Twindel queen rearing apiary to find the poor queens, that we do to find the best queens for breeding purposes. When we find a poor queen we requeen as soon as possible and use a queen excluder under the hive or a drone trap at the entrance to prevent drones from flying from that colony, thus preventing our virgins mating with undesirable stock (Twin-Del is an ideal place to mate queens because we have control of the drone situation. We have the privilege of requeening such colonies of our neighbors as we may wish to, thus insuring drones of good stock.) In conclusion we would say that a colony that is dissatisfied with their queen is as a rule very easily requeened, and if the instructions on the mailing cage is followed closely is all that is required for safe introduction. A colony that is satisfied with their queen must be made dissatisfied, by making them queenless for about ten days and then destroying the queen cells, and the new queen may be safely introduced by the mailing cage method.

Another simple method for introducing queens into strong colonies is to let the old queen have dominion, and so introduce the new one that she will not be molested till she begins to lay. The push in the comb cage method may be employed in this case, and when the new queen has started to lay, the old one may be removed and the new one given her freedom after smoking the colony and the job is done.

## Co-operative Bee Work in Berks County

**By Merle T. Hartman, Assistant County Agent, Reading, Pa.**

During the past year the beekeepers of Berks County have enjoyed for the fourth year a rather complete series of practical bee demonstration meetings covering the more important phases of beekeeping.

The bee work in the county is made possible by the splendid co-operation of the beekeepers with the Berks County Agricultural Extension Association and the Berks County Beekeepers' Association, together with the excellent service of Charles N. Greene and George H. Rea.

The Berks County Beekeepers' Association is an active organization with a membership of about sixty, representing many of the largest beekeepers in the county. We have in the county about three thousand hives of bees distributed among five hundred beekeepers.

During the past year a total of fourteen beekeepers' meetings were held, two indoor meetings and twelve demonstrations with a total attendance of two hundred ninety-five. We have the county divided into twenty-five communities in which a program of work is arranged and carried out, and the bee meetings were so arranged as to cover twelve communities, which are the more important bee communities of the county. The demonstration meetings included Unpacking, Transferring, Swarm Control, Requeening, Inspection and General Management,—water, soap, formalin treatment for American Foulbrood, Preparation and Winter Packing.



Demonstration by Mr. Greene at the Reading Fair on the general management, handling and transferring bees was of great interest to many people.

The bee work in the county is arranged by the secretary of the Beekeepers' Association in conference with the County Agent and Assistant County Agent.

We try to arrange a series of demonstrations that will cover the important phases of beekeeping and try to locate the demonstrations so that it is possible to reach the greatest number of beekeepers. The time of the demonstrations are so arranged as to be in accord with the development of the bees.

We plan to hold two meetings a day so as to reach the greatest number of people in the shortest possible time with the service of the apiary specialist, thus reducing the number of trips by the specialist to a minimum.

The Berks County Agricultural Extension Association has co-operated and tried to render a useful service to the beekeepers of the county as follows:

(1) Either the County Agent, Assistant County Agent or both have attended all bee meetings in the county, offered suggestions, supplied transportation for the specialist and several beekeepers and assisted with the demonstrations.

(2) Secured the services of apiary specialists.

(3) Stenographic assistance in the preparation of letters and notices of bee meetings, a limited amount of postage so as to have all beekeepers in the county receive a schedule of the bee meetings.

(4) Publicity in the way of newspaper articles announcing the meetings and a write-up of the proceedings of each meeting.

(5) Snap shots were taken at many of the demonstrations and are always available at the extension office.

(6) Assistance in locating material for foulbrood demonstrations at a saving of $1.25 per gallon for formaldehyde.

(7) Collected exhibits for exhibition at the Reading Fair that were collected in various communities.

(8) Brought exhibits to State Show.

In closing, may I say that we feel we have rendered a valuable service to the beekeepers of the county.

## Activities of the Berks County Beekeepers' Association

**By Harry W. Slegel, Birdsboro, Pa.**

The Berks County Beekeepers' Association was organized March 10th, 1923, and being a new organization, left the program that year in the hands of the County Agent. That year we had four demonstrations and ended with twenty-three members. Each year since then our program has been mainly demonstration meetings. In 1924 we had eleven demonstrations, and ended the year with thirty-seven members; in 1925, twelve demonstrations and forty-seven members; and in 1926, thirteen demonstrations and sixty-two members, besides our activities at the Reading Fair. These meetings were held in all sections of the county and, where possible, at the apiary of some member, the object being to instruct those present, by actual handling of colonies, in best bee practice, especially those manipulations appropriate to the season of the year when the meeting was held. However, the entire cycle of the beekeeping year was explained at each meeting, and any one present could ask questions on any beekeeping subject and have them discussed after the demonstration was concluded. In this way we feel that we are

helping those who keep bees to become better beekeepers, and at the same time work up interest in the association in order to continue the policy of being useful to all beekeepers in the county.

While conducting our program in two different localities along the northern boundary of our county, the past season, we discovered American Foul Brood. The apiaries, where it was found, are about twenty-five miles apart. Both of the beekeepers were willing to have a demonstration of the treatment for this dread disease, and with the co-operation of Mr. C. N. Greene, Chief Apiary Advisor, and the County Agricultural Association, our association held a demonstration at each place, and the beekeepers treated their combs with the water-soap-formalin solution.

As we consider these demonstrations our most useful and up-to-the-minute meetings of the year, I will give an outline of the work done at the largest of the two apiaries.

On July 8th, we had scheduled a meeting at an apiary near Rehrersburg to show the proper manipulation of supers at the end of the honey flow. There was a poor crop on the hives, although a few seemed strong. As soon as Mr. Greene opened the hives, he noticed the trouble, and arrangements were made to hold a foul brood demonstration July 22nd. Previous to that date the beekeeper reduced his apiary from 38 colonies to 19 by uniting them. During the meeting, each two story hive (and some had three stories due to uniting) was shaken in front of a previously cleaned hive body which had been cleaned out and scorched with a blow torch, and in which was placed an empty comb and three sheets of foundation.

Tops and bottoms were scorched during the meeting. All brood was put into hive bodies and taken several hundred feet away from the apiary, and stacked six or seven hive bodies high, to be treated after a lapse of three weeks after the brood had emerged. The empty combs and combs of honey, together with all other equipment not in immediate use, were taken into a bee tight out house, to be treated later. The meeting lasted from 10:00 a. m. to 5:00 p. m.

The empty comb which was placed in the shaken colonies to receive the honey contained in the honey sacs of the bees was removed the next day. The colonies were given only three sheets of foundation, because there were plenty of good combs which could be used after disinfecting them.

The combs were treated as follows: All honey was extracted from the combs and especial care taken that all cells were uncapped. They were then put into a galvanized tank which held 50 combs, and enough water put in to cover them. They were held in place with weights to keep them from pushing up out of the water. After soaking for twelve hours they were extracted again. This washing cleaned them of all honey, which would have diluted and thus weakened the solution. The combs were again put into the tank which was raised about three feet from the ground. A faucet in the bottom of the tank was connected by a hose with a drum of water-soap-formalin solution, and the drum raised by a block and fall, which filled the tank of combs by gravity, the drum being higher than the tank.

The solution was made as follows:

| | |
|---|---|
| Rain Water | 4 quarts |
| Liquid cocoanut oil soap | 2 ounces |
| Formaldehyde (40%) | 1 quart |

The combs were allowed to remain in this tank, which had a tight cover to prevent evaporation, for 48 hours, after which the solution was drawn off by lowering the drum. The combs were again extracted (the solution being saved and used again) and allowed to dry in the open air, after being dried they were ready to be used in the hives.

The cost of treating this apiary, not including the labor, as compiled by Assistant County Agent M. T. Hartman was as follows:

| | | |
|---|---|---|
| One square tank (50 comb capacity, 50 gallon steel drum, hose and faucet) | $12.50 | |
| Transportation charges of equipment | 5.00 | |
| Liquid cocoanut oil (Whiz hand cleaner) | 1.83 | |
| Formaldehyde | 12.50 | |
| Rubber Gloves | .75 | |
| Total cost in cash | | $32.68 |
| Value of equipment 25% depreciation | $9.45 | |
| Value of used solution as weed destroyer | 1.55 | |
| | | $11.00 |
| | | $21.68 |



Number of frames treated, 1010.

Cost per frame not including labor $.0214.

Follow up inspections of each apiary have shown us that the treatment in each case was a complete success.

## Preparing Honey and Wax for Market

Robert Conn, Roaring Branch, Pa.

To prepare honey for the market, every effort should be made to have it well ripened before extracting, as this makes better honey than artificial ripening.

With us, however, it is not always possible to have it as ripe as we would like to have it before extracting. With us, the season of 1926 was very late, and this made it very difficult to get the white honey at all well ripened before extracting.

Ordinarily the white honey flow starts, with us, about June 1st to 10th, but the season of 1926 was about two weeks late, or about June 25th when the flow started. In a normal season the flow ceases about July 15th, giving the bees about fifteen days to ripen the honey before the buckwheat flow starts, but in 1926 the flow continued until after August 1st, so that we had to put the white honey above bee escapes to keep it from getting mixed with the buckwheat honey when coming in, and as we had plenty of extracting combs we put one next to the broadnest to catch the buckwheat until we could get the light honey extracted.

After extracting this honey it was very thin, and as we had a tank with a water jacket we kept this honey at 130 degrees for 48 hours in this tank to ripen it. It was then run through a cloth strainer into the filling tank, and let cool, and then pailed. This honey was in fairly good condition for market, but I would prefer to have it ripened on the hives.

The dark honey was also late, and was thin, and had to be ripened in the same manner as the light honey. Later, some of this dark honey began to ferment and had to be reheated and evaporated a second time, but not as hot as the light honey, as it injures the flavor of buckwheat honey if heated too hot; 120 degrees is hot enough. If kept at this temperature for 48 hours the ferments will all be killed, and it will be fairly thick, and will keep a long time.

Preparing wax for market with me is a very easy task, as we don't make wax from old combs any more, but from cappings only.

The method we use is to put about twelve quarts of water in a No. 9 wash boiler and set it on the stove, and add cappings as fast as they melt down until the boiler is full; then set off and dip off the free wax into molds and let cool.

Always use a copper boiler, since wax is darkened if it comes in contact with iron.

PROBLEMS OF THE BEE SUPPLY DEALER. P. A. McGowan, Williamsport, Pa.

## Observation and Use of the Standard and Large Hives

Edwin J. Anderson, Extension Apiarist, State College, Pa.

A great deal of discussion has centered around the different sized hives. Each of the proponents have claimed advantages for his particular hive. It seems that most of the arguments have been in favor of the smaller hive for comb honey production, and the larger hive for extracted honey production. The use of the smaller hive, especially the eight frame size, helps to force the bees up into the section which is often a difficult task. The use of the smaller hive seems to encourage swarming, which is against successful honey production.

The author has had considerable experience with thirteen frame hives in producing extracted honey. In the brood chamber twelve frames have been used instead of thirteen and in the surplus supers eleven frames instead of thirteen. This extra space below lessens the swarming tendency. The use of eleven frames instead of thirteen affords a saving in several ways. First, it cuts down the initial investment of the price of the extra frames and foundation. Second, it affords a saving in labor in assembling the frames, and finally it makes less frames to handle at the time of extracting each year. There is just as much honey in each super, but two frames less to extract. The thirteen frame super when full of honey is extremely heavy and somewhat difficult to handle, so that in this respect a smaller hive is desirable. However, the shallow supers could partially overcome this difficulty. The queens have been given ample room to lay, since excluders for the thirteen frame hives could be obtained without excessive expense and were not used.

In favorable years these larger hives have been used successfully for comb honey production, while during off years they were not very successful.

The ten frame hive seems to be a good average and can be used successfully for either comb or extracted honey. Nine frames instead of ten can be used in the surplus supers for extracted honey.

The size of hive is not of first importance in so far as the essentials of bee management are concerned. Those things of greater importance which refer to spring management are:—First, a vigorous young queen not over two years old. Second, plenty of room for laying purposes—not less than two full size, eight frame bodies. Third, a proper amount of food, or not less than twenty pounds at any time during the brood rearing season. Fourth, protection from the cold and wind for the bees during the early brood rearing season. Fifth, plenty of room for storing surplus honey during the favorable springs. The queen is the first essential, since no amount of skillful manipulation will bring success if she is not one of quality. The other essentials are but accommodations which permit the queen to do her best with the assistance of the bees about her in the colony.

## The Roadside Orchard Fruit Stand for Selling Honey

Albert T. Keil, Mars, Pa.

For the last three years I have had an opportunity to make a close study of the road-side stands both in this State and Ohio.

At the Treesdale Farms, where I am employed, we have a roadside orchard stand and two fruit stands. These two fruit stands are situated by extra well traveled highways.

To the average city fruit customer there seems to be no connection between fruit and honey, but when we explain the necessity of bees to pollenate the blossoms to secure good perfect fruit, they are interested. Then when we inform them that it takes about 25 trips for a bee to bring in a drop of nectar, and that this has to be evaporated down to the thickness of honey, and that it takes about five drops of nectar to make a drop of



honey, they are surprised at the amount of bee labor that it takes to make a drop of honey.

As our orchards increased in the amount of producing trees, a larger amount of bees were required, and this in turn brought on a production of honey for which we had to have an outlet, both for the honey and fruit. Rather than sell at wholesale or peddle, a roadside market was tried, and with great success from the start, and as production increased, two more locations for stands were purchased.

As the southwestern section of Pennsylvania is not a comb honey producing section, due to the slow honey flows, extracted honey had to be resorted to. The call was for comb honey, many people never having heard of extracted honey. We therefore had to educate the people to eat the kind of honey we produced, they being suspicious of the honey being manufactured. We put it up into one pound jars and five pound pails.

The jars we sold as samples, at 10c per pound higher than that in the pails, to cover the extra cost of package and labor, and to discourage customers from buying in small packages when they could, by buying in larger amounts, save more money. About half of those that bought a pound jar one day would come back next week and get a five pound pail. The idea is to educate the people to use the kind of honey you are able to produce.

People seeing an "Apple For Sale" may not be interested in apples. The same may be said of the "Honey For Sale" sign, but the two attract a certain class of people, who when they see more than one product for sale will stop, and when they see the grade of products sold, besides the honey, will usually buy both, thus giving us retail prices for the honey and fruit.

We consider honey as a great asset in selling apples, as fruit of a certain grade can be purchased most anywhere along the highways, but there is not a very large production of honey in our immediate part of the State, there being few beekeepers with any large number of bees.

We sell our honey at a fair price for this section. We would want honey to sell even if we had to buy and sell at cost, providing the quality was O. K.

In talking with roadside stand owners in Ohio we find the same good results in selling honey with fruit, and I know of no two other articles that help the sale of each other as fruit and honey, although there is such a vast difference in taste.

By selling honey sandwiches, or hot waffles and honey, one could attract more customers, and make more sales of fruit and honey.

## Supplying the Local Market with Honey

By Charles D. Ruth, Emaus, Pa.

I have tried different ways of advertising honey, but find the best way is to help your local Lodge, Church Brotherhood, Ladies Aid or Club by furnishing honey for their waffles or hot biscuits at their feasts or banquets.

Then leave a supply of booklets on honey where they can get them, and soon they will be ordering some of that kind of honey that you had at so and so's banquet; then you know from the amount of orders secured just how cheap your advertising was.

I also give newspaper men a sample when giving them an ad, and then they will ask questions about bees and honey. Just give them talk enough to make them anxious, then leave them and watch results. The story or write-up will make more sales than the ad that you paid for.

Again, having bees in an orchard where they sold their product direct to consumers, I would spend part of the time in the packing and sales-room, and have a lot of honey on display, together with live bees in a glass hive to draw attenion. I could sell a lot that way.

In selling from house to house I find that by calling at the kitchen door instead of the front door I can make more sales.

You will find that the housewife is usually busy in the kitchen, and will not answer the front door, but will usually give you a few minutes if you call at the kitchen door, and by carrying a sample I can usually make a sale.

These are only a few methods that can be worked out for selling and advertising honey.

## Stimulating a Demand and Supplying a Local Trade in Honey

By Dr. George T. Hayman, Doylestown, Pa.

Mr. President and Fellow Beekeepers: When I think of 30,000 beekeepers in the state of Pennsylvania, with perhaps only 500 members and only about 60 present, I really think you ought to be complimented on your loyalty and sincerity to your organization.

I was asked to talk this morning on stimulating a demand, and supplying a local trade in honey. Mr. Greene told me he gave me a large range in subject, but he has given me only fifteen minutes in which to "range" so I will have to stick pretty close to the subject.

To stimulate the honey market as I see it, requires a lot of work; or in other words, we cannot build super structure before building foundation. What I would call the foundation necessary to stimulate the honey market would first be a strong state organization. We must have some way of educating the general public to eating honey. We will have to appeal to them from a health standpoint which we can earnestly do, but it is not practical for the individual honey producer to do this. It should not only be a state-wide campaign, but a national campaign. Could we imagine anything more helpful than a state organization backed by a national organization, both putting on a national campaign to educate the public to eat honey, first for health's sake and second for goodness' sake? It has been my experience that newspaper advertising for parcel post selling has been far from profitable. For instance, I spent forty-five dollars with a leading Philadelphia newspaper, after consulting the parcel post editor, and we both worked hard to write the parcel post ad, and it did not bring me one dozen sales.

If we could have one-tenth of the beekeepers of our state members of our organization, and each one assessed $5.00 for an advertising campaign this would give us approximately $15,000, which, if carefully spent by an advertising company (what I mean by carefully spent is to have ads well written and placed in proper publications) would create such a demand at the grocery stores, and other food selling centers, that when we presented our product to the retail man, carefully graded, neatly labeled, and with a seal on it stating that we were members of the Beekeepers Association who were responsible for the educational campaign, we would have no trouble in disposing of our goods. I am a believer in advertising, but believe that it should be properly done. I recall a story told by an advertising salesman, when his prospective customer told him he did not believe in advertising, but on questioning him, the salesman found that on arising in the morning, his customer bathed with Palmolive soap, shaved with a Gillette razor, used a Fuller brush, used Colgate's tooth paste on a Prophylactic brush; he then put on his B. V. D.'s, Hole Proof socks, Paris garters and an Arrow collar, not to mention his Cantilever shoes, rinsed his mouth with Listerine, and still insisted he did not believe in advertising. Now this is just the kind of advertising I believe in—educate the people to your goods so completely that they wll unconsciously buy the goods they have seen advertised. There is nothing I would enjoy more as a beekeeper than to see an advertising campaign put on similar to what I have outlined. Without our state and national associations to back our advertising, it seems to me that we are in very much the same position as the stranger who came to Philadelphia and was walking down Market street towards the Ferry, when he met Mr. Catell and asked him, "How far is it to the City Hall?" Catell replied, "You have about 24,999½ miles in the direction you are going, but if you will turn



around, you will have about half a mile." If we do not get some good concrete backing, we have quite a hopeless job before us.

I am going to give you some of my experiences in marketing honey with both good and bad results. If I can help you in any way in marketing honey; if I can leave one helpful thing with you I shall feel well repaid.

I have always been interested in bees, but not until about ten or twelve years ago did I ever have an opportunity to keep them. With this opportunity to keep bees, I had the good fortune to get a retired farmer and beekeeper to work for and with me. He had had about forty years of beekeeping experience, and was a very practical man. The first year from two colonies I had about 150 lbs. of extracted honey. It was a beautiful light honey; fortunately much lighter than some I found on the market when I started out to sell it in my home town. I had no trouble disposing of my small quantity; leaving it on consignment guaranteeing sale. After placing it in most of the stores, and advertising it in the local paper where it could be purchased, I soon found myself sold out of honey.

The next thing I did was to consult "Gleanings" as to where I could buy honey to fill my growing demand for both comb and extracted honey.

After buying small quantities from a number of dealers from New York to Iowa, I finally got hold of a Michigan dealer who could supply me with just what I wanted—a beautiful white clover honey. The first ten cases came in, and it looked like a mountain when it came to selling it, but with our local fairs, where we both demonstrated the quality and flavor by giving out samples on crackers and by selling direct to the consumer, as well as taking orders from grocers and roadside stands, we soon found ourselves in the market for more honey. The business was increased until this year we purchased over 15,000 pounds, with our plans all set to purchase for next year a carload minimum weight, about 30,000 lbs.

I have spent little time soliciting wholesale orders except over the route I travel in my professional work. I have never tried to give a customer more than I thought he could sell in a short time. I do not approve of, and in fact know that it is a poor principle, to overload a customer with more goods than he can sell while it is in the most salable condition as to looks, etc. I try to select first class grocers, and the most attractive roadside stands, and in approaching them I show them the style package of honey I offer for sale. The most practical are the one and the three pound jars. I use standard honey jars. I do not ask my customers to pay for the goods when delivered. I tell them to display the honey in a conspicuous place, give them two or three neat signs, and by the way, the very best ones for outside use that I know of are the ones published by the A. I. Root Co., Medina, O., in yellow and black, with an arrow on them, size 22 in. by 40 in. In two or three weeks I will call on them again and find out how they are getting along and as a rule I find that things are moving along very satisfactorily, or that they are sold out of the small quantity that I left with them. About four years ago I called on a man, a patient of mine, who has a farm and a roadside stand with a beautiful little grove in front of his home. They sold homemade pies, cakes and farm products. I found him very busy putting in a foundation for a silo. I told him I had stopped because I admired his place and thought it would be a good place to sell honey. With a smile and pleasant remark he said that while he would certainly like to help me out, but that he had some honey of a friend and neighbor that he had had for two or three years that he could not sell; in fact, he said it was impossible to sell honey there. He said people simply did not want it. I told him I did not want to sell him honey, but just wanted to leave some there and perhaps it would help him sell his dark honey, and by that time he had a jar of my white honey in his hands and was admiring it. I asked to see the honey he spoke of. He was enough interested by this time to stop work and take me in the house and show me the dark honey he spoke of. Dark is putting it mildly—it was black, and was put up in quart fruit jars with a big rubber ring under the cap, and had no label on it, and gentlemen, I want to say right here that I was not surprised that he had had it several years, and thought folks would not buy honey. In the past four years

he has used between two and three thousand dollars' worth of honey. I have only one other roadstand that equals his, and it has a market route which helps dispose of the products.

The best results I have ever obtained in grocery stores in my home town, or in Philadelphia, or elsewhere, have been where I exhibited live bees in observation hives in the show window and trimmed the window with honey and flowers, and used a mannikin dressed up as a beekeeper, with hat, veil, smoker and hive tool, and then placed on the window various little booklets showing the value of honey, and pamphlets such as we can get from the manufacturers of beekeepers' supplies.

Right here I might say that too much credit cannot be given the A. I. Root Company, who have done a lot to advertise honey, in the way of putting out little books such as "Honey As Food" which we can buy for $12.00 per thousand, and which if we had them printed would cost us $50.00 per thousand, and cook books, "The Use of Honey in Cooking," which they put out for $8.00, and to buy them from someone else would cost at least three times that per hundred. And now as to window demonstrations; a few years ago, I put an exhibition such as I described, in Geo. B. Evans' drug store on Market street, Philadelphia. They have artistic window decorators, and the window was dressed with an old apple tree in full bloom, and with a mannikin and live bees, and literature I have mentioned. After this window was uncovered the sidewalk was so jammed with spectators that some one had to send a call to City Hall for police to clear away the congestion. During the demonstration Evans sold several hundred dollars worth of honey, the purchasers having since remained good customers. I have given other like demonstrations in Philadelphia with equally good results. I have at present about fifty wholesale customers, and have shipped honey to about 150 parcel post customers. I keep the names of all my customers, and this year for the first time went over my order files and made a careful list of everyone I had ever shipped honey to, and mailed them a letter (as enclosed.) In all my experience in selling honey, I have never gone into but one place where I failed to sell honey. This failure I attribute to the fact that I was asked to see different members of the organization, who had charge of the buying and it was impossible to spend the necessary time to see them all. It is mighty easy to see mistakes in another's business methods, and I only mention this in comparison with our own business.

Take something we all known about, for instance, the enormous apple crop of this year. I have friends who have large apple orchards, who have their apple caves full of apples at the present time. If they were organized, and had put on an advertising campaign, making up menus, naming dozens of ways of using apples, stating what a healthful, inexpensive fruit it is, and using the old adage, "An apple a day will keep the doctor away," I believe the apple market would be much improved. Using this as a comparison, we can see what could be done with our honey market.

We have over 110,000,000 people in the United States, and we produce probably 55,000,000 pounds of honey, or a half pound per capita.

We use about 112 lbs. of granulated sugar per capita. About what we do is to sell honey to the few people who are fond of it and let those who are not acquainted with it, and who feel that they do not like it, go uneducated. We want to produce more honey of a better quality, educate the people to eat honey, and it will be impossible to produce it fast enough to supply the growing demand.

My practice is, and I will never change it—to put the honey I offer for sale in neat clean packages, and first of all have clean honey, that you would not hesitate to eat yourself. Have your goods right, and packed right, so that it will make the very best appearance. Fix the price so that the retailer gets a fair commission for his work. If you sell honey at the apiary, always charge the same price that you expect the grocer or roadside stand to charge. We all realize that we have considerable overhead in doing business and we must be careful or we will be doing business at a loss.



## Agricultural Fair Exhibits of Honey, Wax and Honey Products

By Harry W. Slegel, Birdsboro, Pa.

In 1924 the Reading Fair premium list offered a total of $6.00 premiums on honey exhibits. This small sum was consistent with the amounts offered by other fair associations throughout the state. Through the efforts of the Berks County Beekeepers Association, the Reading Fair Company increased the amount of premiums to $51.50 in 1925, and this past season to $73.50 for bees, honey, wax and culinary products, using honey in their makeup.

Some of the other fair associations have increased their premiums on apiary products also. York offers $72.00, Allentown $41.00, Ebensburg $41.00 in 1926. Most other fairs offer small premiums or none at all.

In order that an apiarian exhibit at a fair be a success it must have entries. A big premium list means very little if there are few exhibits for the public to view. A honey department should have some one in it that is interested in honey and bees. An effort should be made on every occasion throughout the year to interest the honey producer to exhibit his product at his county fair, not alone for the premiums he may possibly get, but to help increase the interest in honey as a food, and thereby increase the consumption of honey. A big exhibit will tend to have people talk about it, and create a desire for honey, and help make sales for all beekeepers.

To get the most possible individual exhibits at a fair, it will be necessary for someone to be the goat in taking care of the honey after it comes to the fair, for beekeepers feel that even though they secure a premium, it would hardly pay to make two trips to the fair grounds, one to bring the exhibits and the other to take it away, besides the work necessary to prepare the exhibit.

Our exhibit was as fine as it was, due to the excellent co-operation of the Berks County Agricultural Extension Association in spending two days collecting exhibits from eight different localities, previously designated as collecting points by the Berks County Beekeepers' Association, and then returning them after the fair, if the exhibitor so desired.

In connection with such an exhibit, be sure that a competent judge is secured in order that all exhibitors will be satisfied as to the fairness of the awards. In the exhibit itself, one must guard against crowding. Many of the fair grounds have inadequate buildings to house the exhibits, and this causes many exhibits to be crowded. Honey is one of the things that should never be crowded, as it detracts from its appearance and even though there should be a large exhibit, the public will not be attracted by it. Comb honey should be kept in a glass case to protect it from the dust and dirt which settles on it due to the shuffling crowds that pass along. A dusty section of prize comb honey does not tend to excite the appetite any more than an old faded section covered with propolis.

In conclusion let me say that the county fair is a good place to advertise your county association. An educational exhibit is a good way of calling attention to it.

## Efficient and Economical Process for Rendering Wax

Harry W. Beaver, Troy, Pa.

In this talk I will give the method of wax rendering I myself use. If I knew of a better one I would use it. There are hundreds of dollars lost to the beekeepers of Pennsylvania every year through faulty methods of wax rendering. At best it is a mussy job, and rather than bother with the scrapings and odds and ends of combs, many beekeepers throw them away.

For the small beekeeper a small solar wax extractor would probably take care of it best, and he could then sell the slumgum to some one having an efficient outfit, or try it out themselves, by boiling and pressing.

For those having a large amount of wax to render every year it will pay to have a good outfit, then the whole year's accumulation can be rendered out in a day or two, and every bit of wax obtained. Often enough more wax can be obtained with a good outfit to more than pay for it in a single season.

To get the last bit of wax out of old combs it is necessary to have a good wax press; my outfit consists of a small steam boiler such as Sears Roebuck & Co., list in their catalog, a wooden tank 2'x4'x12" deep, made of 1¾" cypress with a sheet iron bottom, a Hershizer press and a galvanized round tank 24' high and 20" in diameter with a faucet, these last three named set in a row on a foundation a foot high for easy working, and all connected with the steam boiler, so each one can be heated separate or all at once as desired. Then I have a press made over from an old cider press setting to one side of the wooden tank. The can to this press is 14"x10" high and has a slatted arrangement inside covered with ¼ in. mesh wire cloth. For a dipper I use a gallon oyster pail with a wooden handle nailed on on a slant, and a good supply of burlap sacks completes the outfit, which is housed in a building 12'x12' built for the purpose. Here all wax scrapings, etc., for the year are dumped till such time when an opportunity presents itself, when we render it out.

To operate, we boil the frames first while the water is clean. This sterilizes as well as cleans them; then we melt the old combs or refuse in the wooden tank, and press the slumgum in the big press, putting five gallons of the soup in at one time, and press slowly and hard, and catching the wax and water and dumping into the round tank. Continue the operation till round tank is full of water and wax, drawing off the water from time to time, and using over again. The wax can be dipped off when there is enough to fill a mold and set aside to cool. Molds can be made from old sixty pound cans by cutting out the top.

The slumgum from the big press contains quite a lot of wax, and this we get by making it into cheese and putting it through the Hershizer press, as per directions that go with the press. While this is pressing we go on and melt more combs, and repeat the operation.

Before we used the Hutzelman solution we would melt up as many as 600 combs a day with this outfit and get all the wax. This work was done in winter when no bees were flying.

For melting cappings I made a solar extractor, thinking to save the honey, but as it gave it a waxy flavor I gave it up and used a honey press instead, and melted up the cakes of cappings in the big tank. After boiling a tankful of the cappings and water, I shut off the steam and allow the wax and propolis to separate somewhat, and then dip off the free wax, and put into molds. I then put the balance of the slumgum in sacks in the Hershizer press and if pressed slow enough the wax will float to the top, and the propolis will be retained by the burlap sack.

When the wax is put into molds they should be set close together and covered so the wax will cool slowly, giving the dirt time to settle to the bottom, and the wax will have a better grain.

To successfully render wax, use plenty of water and keep it hot.

## Plant and Plan For the Future

**Edwin J. Anderson, Extension Apiarist, State College, Pa.**

With the possibility of a wood famine in this country, the beekeeper should do his part to provide a future supply of timber. The beekeeper, however, can reap a double harvest by selecting and planting those trees which produce both wood and nectar. Forest trees which grow in Pennsylvania and yield nectar are rapid growing trees so that wood can be obtained from them in a reasonable period of time. The principal trees for the fual purpose are basswood, tulip poplar, and black locust.

The basswood prefers a good soil with plenty of moisture. It makes a



good quality of wood, and is the only wood from which honey sections are now made. It yields nectar in large quantities during the favorable seasons. During the summer of 1926 it yielded a large surplus when the clover and buckwheat were nearly a failure. The honey is light in color and of a fair quality. The tree blooms in the open when about twelve years old.

The tulip poplar is one of our fastest growing trees and is one which produces a wood of fair quality. As much as a half-teaspoonful of honey may be poured from a single flower. The honey is amber in color and of fair quality. The tree blooms for a fairly long period of time, about three weeks. It has been known to produce the tenth year after the seeds were planted.

The Black Locust grows fairly rapidly and makes valuable wood for fence posts or railroad ties. The honey is of fine quality and is light in color. It is rather irregular in regards the secretion of nectar, however, and apparently misses a number of years. It produces blossoms when only a few years old.

Each of these trees bloom at a slightly different period of the year and each requires a somewhat different soil. Information regarding the adaptability of the soil should be obtained before planting the trees. The locust blooms first. It is followed by the tulip poplar and then the basswood. A beekeeper who can add these additional sources of nectar to his locality is running less danger of a failure in any one season, and is increasing average production per colony in the good years. By planting these trees himself or by encouraging his neighbors to do so, the beekeeper will not only increase his earning power, but will add to the wealth and natural resources of this state in two ways. First, by increasing the amount and value of the wood supply. Second, by increasing the potential sources of honey.

The locust are available at the Department of Forest and Waters, Harrisburg, Pennsylvania, for forest plantings. The tulip poplar were available last year, but may not be available in the future. Some basswood will be planted this fall to be available two years hence. These trees have already been requested. All trees distributed by the Department of Forests and Waters are obtained at the cost of handling, whether they are evergreens or hardwood trees. The beekeepers should do all possible to get and plant those trees of value as a source of both wood and honey.

## Schedule For the Production of Comb and Extracted Honey

**Elmer G. Carr, Pennington, N. J.**

I have been assigned the topic, "Schedule for Producing Comb and Extracted Honey." Some of us must have lost or mislaid our schedule the past season. At any rate we did not produce the honey.

My experience in trying to follow some definite schedule for producing honey as printed has often resulted in disappointment because the schedule was made for a condition which differed from that under which I was working. Then the variation in seasons in many places necessitates a modification of the schedule.

Except in locations where no surplus honey is gathered until the fall flow, it is necessary to lay the foundation for a honey crop the previous year.

Since the "heart of the colony is the queen" it is necessary that a good one be in the colony early enough the previous year to insure that she is able to produce enough eggs to provide a goodly force of young bees for winter. Whether the queen shall be put in the colony about August first, as is widely recommended now, is not so material if she is still vigorous enough at that date to do her full duty even though she be a year old.

Apparently bees, especially Italians, sense a condition of scanty stores and reduce breeding to fit these conditions. If then, there is a lack of stores in the colony during the time when the young bees should be reared for

the winter colony, there may be insufficient bees of the right age for good wintering.

After having reared a good colony of young bees, it is necessary, for good results, to carry them through the winter with vitality unimpaired in so far as this is possible.

Just how to carry the colony through the winter is a matter for each to decide for himself. Undoubtedly cellar wintering is best in some places—in others a packing case of some type may give best results. I am pleased that your Mr. Beaver is testing different methods of wintering. It is regrettable that so many beekeepers are now depending on others to do their experimenting. Often this is done under conditions enough different from the beekeeper's that it has but little value for him.

Both the quantity and the quality of the stores for winter are important. No doubt the amount of stores to be left for winter may be modified by the earliness and certainty of supplies of nectar in spring to replenish the stores. although it is not good business to be mean with the bees when it comes to winter stores. If there is any doubt about the quality of the stores for winter, ten pounds of sugar syrup will insure against loss because of poor quality.

All the bees need in spring is an opportunity to do business.

A good colony of bees in spring with abundant vitality, a good queen and plenty of stores needs but room to develop to maximum strength.

Years ago brood spreading was very much discussed and no doubt the bee masters of those days practiced it with profit. However, it is fraught with so many dangers for those who are not expert that it has fallen into disuse.

One method of spreading brood I sometimes practice. When a colony gets 5-6 frames of brood it may develop the swarming fever. If at this time a second story is added and two frames of open brood raised to this second story, the other frames being filled with built comb if possible, and two frames from above put below on the outsides of the broodchamber, a stimulus will be given the colony without danger of damaging brood. If the colony is very populous a third body may later be given after the Running plan.

The principal requirement at this season is maximum brood rearing.

After having provided conditions under which bees may build up to maximum strength, swarming may become troublesome. If one could have swarms issue when wanted and have them alight on convenient places, it is possible that swarming, if properly handled, might not decrease the crop. However since these conditions cannot be assured the prevention of swarming is desirable.

If all queens are vigorous and the bees are given an abundance of room, swarming will be reduced to the minimum. Those colonies which persist in swarm preparations may be shaken.

Supering, especially for comb honey is an important factor in producing a crop of honey. It should be borne in mind that bees draw foundation best when it is near the broodnest and that of comb honey is near the broodnest when being capped it is quite likely that some of the dark wax from below will be used in capping and thus decrease the attractiveness of the comb honey. Of course it is always necessary to reduce the colony to one-story when putting on the comb honey supers. When the honey flow arrives fill one brood chamber with the oldest brood and if the colony had been occupying two stories put on two comb honey supers at once. Add supers as needed taking care to have the last added super next the broodchamber and the one nearest finished second from the broodchamber.

Supering for comb honey is a combination of guesswork and judgment, neither of which may give entirely satisfactory results. The comb honey producer is required to take chances in supering or be exposed to the danger of losing part of the crop.

Not every colony in an apiary is in condition to do comb honey super



work when the flow arrives, so the bodies removed from those which are supered may be put on the slow colonies with an excluder to keep the queen below and, when filled with honey may be extracted, stored for spring feeding or used as a food chamber on colonies when the comb honey supers are removed.

In supering for extracted honey the same manner of adding the supers may be used although, except in having combs drawn, there is less need of putting the new super below. After the flow is well under way the queen should be put down into the lower story. Some beekeepers sort over the combs when putting the queen down and put the combs with pollen in the lower story, which is good practice.

## The Value of the Honey Bee as a Pollinator of Fruit Bloom

By Henry R. Eby, County Agent, Pittsburgh, Pa.

Bees are kept for two main reasons, for the production of bees themselves—honey and wax—and for the part they play in fertilization of flowers. My remarks this afternoon will be confined to the latter. I am safe in saying that it will be generally admitted that bees do perform a great service to the fruit grower in cross-pollinating fruit trees. On this point an immense amount of data has been offered by scientific and practical men. I will present for your consideration only some of the authoritative evidence on the subject, not only by beekeepers but by fruit growers and experiment stations alike.

There are two types of flowers, the perfect or self-fertile and the imperfect or self-sterile. The perfect or self-fertile flower is one that is fertile to its own pollen. The imperfect or self-sterile, that is, sterile to its own pollen, must depend upon some other flower of the same group in order that fertilization may take place. There are also several varieties which are only partially selfsterile, due perhaps to environmental conditions. To get a clearer understanding of the work performed by the bee, let us for a moment turn our attention to pollination. Pollination is the transfer of the pollen from the stamen of a flower to the stigma of the same or another flower. This transfer of pollen may take place by two methods—first, by wind, and second, by insects. Under the first group we find the following: 1—grass family, 2—corn, 3—wheat, 4—oats, 5—pines, 6—maples, poplar, hickory and walnut. The large quantities of pollen are produced by this group and it is light and dry. But we are more interested in the second group, which are pollinated by insects—plums, peaches, prunes, apricots, cherries and all other stone fruits.

The honey bee is the best pollinator which man has under his control. Raspberries, although having a perfect flower, the stigma and stamen ripen at different times, thus depending on insects for pollination. Observations were made that the raspberry plant was visited by 279 insects, 199 of these being honey bees, 61 bumble bees.

Prof. A. J. Cook, Prof. of Entomology, at Michigan Agricultural College, says, "I have tried many experiments. I counted the blossoms on each of two branches or plants, of apple, cherry, pear, strawberry and raspberry. One of those in case of each fruit was surrounded by cheese cloth just before blossom opened and kept covered until blossoms fell off. Trees were examined June 11th to see what number of fruit had set. The percentage of blossoms that developed on covered fruit was a little over 2% while almost 20% of uncovered blossoms had developed."

While bees are necessary in every orchard to carry on the work of pollination, successful pollination can occur only where the different varieties are set out with reference to the time of blossoming. Only certain varieties of apples will pollenize well together. It is therefore obvious that their time of blossoming must be the same. In order to produce fruit not only should the time of blossoming be the same but the flowers of any one

For those having a large amount of wax to render every year it will pay to have a good outfit, then the whole year's accumulation can be rendered out in a day or two, and every bit of wax obtained. Often enough more wax can be obtained with a good outfit to more than pay for it in a single season.

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## Plant and Plan For the Future

**Edwin J. Anderson, Extension Apiarist, State College, Pa.**

With the possibility of a wood famine in this country, the beekeeper should do his part to provide a future supply of timber. The beekeeper, however, can reap a double harvest by selecting and planting those trees which produce both wood and nectar. Forest trees which grow in Pennsylvania and yield nectar are rapid growing trees so that wood can be obtained from them in a reasonable period of time. The principal trees for the fual purpose are basswood, tulip poplar, and black locust.

The basswood prefers a good soil with plenty of moisture. It makes a



good quality of wood, and is the only wood from which honey sections are now made. It yields nectar in large quantities during the favorable seasons. During the summer of 1926 it yielded a large surplus when the clover and buckwheat were nearly a failure. The honey is light in color and of a fair quality. The tree blooms in the open when about twelve years old.

The tulip poplar is one of our fastest growing trees and is one which produces a wood of fair quality. As much as a half-teaspoonful of honey may be poured from a single flower. The honey is amber in color and of fair quality. The tree blooms for a fairly long period of time, about three weeks. It has been known to produce the tenth year after the seeds were planted.

The Black Locust grows fairly rapidly and makes valuable wood for fence posts or railroad ties. The honey is of fine quality and is light in color. It is rather irregular in regards the secretion of nectar, however, and apparently misses a number of years. It produces blossoms when only a few years old.

Each of these trees bloom at a slightly different period of the year and each requires a somewhat different soil. Information regarding the adaptability of the soil should be obtained before planting the trees. The locust blooms first. It is followed by the tulip poplar and then the basswood. A beekeeper who can add these additional sources of nectar to his locality is running less danger of a failure in any one season, and is increasing average production per colony in the good years. By planting these trees himself or by encouraging his neighbors to do so, the beekeeper will not only increase his earning power, but will add to the wealth and natural resources of this state in two ways. First, by increasing the amount and value of the wood supply. Second, by increasing the potential sources of honey.

The locust are available at the Department of Forest and Waters, Harrisburg, Pennsylvania, for forest plantings. The tulip poplar were available last year, but may not be available in the future. Some basswood will be planted this fall to be available two years hence. These trees have already been requested. All trees distributed by the Department of Forests and Waters are obtained at the cost of handling, whether they are evergreens or hardwood trees. The beekeepers should do all possible to get and plant those trees of value as a source of both wood and honey.

## Schedule For the Production of Comb and Extracted Honey

**Elmer G. Carr, Pennington, N. J.**

I have been assigned the topic, "Schedule for Producing Comb and Extracted Honey." Some of us must have lost or mislaid our schedule the past season. At any rate we did not produce the honey.

My experience in trying to follow some definite schedule for producing honey as printed has often resulted in disappointment because the schedule was made for a condition which differed from that under which I was working. Then the variation in seasons in many places necessitates a modification of the schedule.

Except in locations where no surplus honey is gathered until the fall flow, it is necessary to lay the foundation for a honey crop the previous year.

Since the "heart of the colony is the queen" it is necessary that a good one be in the colony early enough the previous year to insure that she is able to produce enough eggs to provide a goodly force of young bees for winter. Whether the queen shall be put in the colony about August first, as is widely recommended now, is not so material if she is still vigorous enough at that date to do her full duty even though she be a year old.

Apparently bees, especially Italians, sense a condition of scanty stores and reduce breeding to fit these conditions. If then, there is a lack of stores in the colony during the time when the young bees should be reared for

the winter colony, there may be insufficient bees of the right age for good wintering.

After having reared a good colony of young bees, it is necessary, for good results, to carry them through the winter with vitality unimpaired in so far as this is possible.

Just how to carry the colony through the winter is a matter for each to decide for himself. Undoubtedly cellar wintering is best in some places—in others a packing case of some type may give best results. I am pleased that your Mr. Beaver is testing different methods of wintering. It is regrettable that so many beekeepers are now depending on others to do their experimenting. Often this is done under conditions enough different from the beekeeper's that it has but little value for him.

Both the quantity and the quality of the stores for winter are important. No doubt the amount of stores to be left for winter may be modified by the earliness and certainty of supplies of nectar in spring to replenish the stores. although it is not good business to be mean with the bees when it comes to winter stores. If there is any doubt about the quality of the stores for winter, ten pounds of sugar syrup will insure against loss because of poor quality.

All the bees need in spring is an opportunity to do business.

A good colony of bees in spring with abundant vitality, a good queen and plenty of stores needs but room to develop to maximum strength.

Years ago brood spreading was very much discussed and no doubt the bee masters of those days practiced it with profit. However, it is fraught with so many dangers for those who are not expert that it has fallen into disuse.

One method of spreading brood I sometimes practice. When a colony gets 5-6 frames of brood it may develop the swarming fever. If at this time a second story is added and two frames of open brood raised to this second story, the other frames being filled with built comb if possible, and two frames from above put below on the outsides of the broodchamber, a stimulus will be given the colony without danger of damaging brood. If the colony is very populous a third body may later be given after the Running plan.

The principal requirement at this season is maximum brood rearing.

After having provided conditions under which bees may build up to maximum strength, swarming may become troublesome. If one could have swarms issue when wanted and have them alight on convenient places, it is possible that swarming, if properly handled, might not decrease the crop. However since these conditions cannot be assured the prevention of swarming is desirable.

If all queens are vigorous and the bees are given an abundance of room, swarming will be reduced to the minimum. Those colonies which persist in swarm preparations may be shaken.

Supering, especially for comb honey is an important factor in producing a crop of honey. It should be borne in mind that bees draw foundation best when it is near the broodnest and that of comb honey is near the broodnest when being capped it is quite likely that some of the dark wax from below will be used in capping and thus decrease the attractiveness of the comb honey. Of course it is always necessary to reduce the colony to one-story when putting on the comb honey supers. When the honey flow arrives fill one brood chamber with the oldest brood and if the colony had been occupying two stories put on two comb honey supers at once. Add supers as needed taking care to have the last added super next the broodchamber and the one nearest finished second from the broodchamber.

Supering for comb honey is a combination of guesswork and judgment, neither of which may give entirely satisfactory results. The comb honey producer is required to take chances in supering or be exposed to the danger of losing part of the crop.

Not every colony in an apiary is in condition to do comb honey super



work when the flow arrives, so the bodies removed from those which are supered may be put on the slow colonies with an excluder to keep the queen below and, when filled with honey may be extracted, stored for spring feeding or used as a food chamber on colonies when the comb honey supers are removed.

In supering for extracted honey the same manner of adding the supers may be used although, except in having combs drawn, there is less need of putting the new super below. After the flow is well under way the queen should be put down into the lower story. Some beekeepers sort over the combs when putting the queen down and put the combs with pollen in the lower story, which is good practice.

## The Value of the Honey Bee as a Pollinator of Fruit Bloom

By Henry R. Eby, County Agent, Pittsburgh, Pa.

Bees are kept for two main reasons, for the production of bees themselves—honey and wax—and for the part they play in fertilization of flowers. My remarks this afternoon will be confined to the latter. I am safe in saying that it will be generally admitted that bees do perform a great service to the fruit grower in cross-pollinating fruit trees. On this point an immense amount of data has been offered by scientific and practical men. I will present for your consideration only some of the authoritative evidence on the subject, not only by beekeepers but by fruit growers and experiment stations alike.

There are two types of flowers, the perfect or self-fertile and the imperfect or self-sterile. The perfect or self-fertile flower is one that is fertile to its own pollen. The imperfect or self-sterile, that is, sterile to its own pollen, must depend upon some other flower of the same group in order that fertilization may take place. There are also several varieties which are only partially selfsterile, due perhaps to environmental conditions. To get a clearer understanding of the work performed by the bee, let us for a moment turn our attention to pollination. Pollination is the transfer of the pollen from the stamen of a flower to the stigma of the same or another flower. This transfer of pollen may take place by two methods—first, by wind, and second, by insects. Under the first group we find the following: 1—grass family, 2—corn, 3—wheat, 4—oats, 5—pines, 6—maples, poplar, hickory and walnut. The large quantities of pollen are produced by this group and it is light and dry. But we are more interested in the second group, which are pollinated by insects—plums, peaches, prunes, apricots, cherries and all other stone fruits.

The honey bee is the best pollinator which man has under his control. Raspberries, although having a perfect flower, the stigma and stamen ripen at different times, thus depending on insects for pollination. Observations were made that the raspberry plant was visited by 279 insects, 199 of these being honey bees, 61 bumble bees.

Prof. A. J. Cook, Prof. of Entomology, at Michigan Agricultural College, says, "I have tried many experiments. I counted the blossoms on each of two branches or plants, of apple, cherry, pear, strawberry and raspberry. One of those in case of each fruit was surrounded by cheese cloth just before blossom opened and kept covered until blossoms fell off. Trees were examined June 11th to see what number of fruit had set. The percentage of blossoms that developed on covered fruit was a little over 2% while almost 20% of uncovered blossoms had developed."

While bees are necessary in every orchard to carry on the work of pollination, successful pollination can occur only where the different varieties are set out with reference to the time of blossoming. Only certain varieties of apples will pollenize well together. It is therefore obvious that their time of blossoming must be the same. In order to produce fruit not only should the time of blossoming be the same but the flowers of any one

variety must be capable of either being fertilized by their own pollen or by the pollen of some closely related variety.

The flower of the apple is regular and perfect in all of its parts. Petals and sepals 5; stamens 20 or less; filaments of two lengths; pistils ripening before stamens; stigma secreting a sticky fluid which also aids in holding pollen falling on pistils. Pistils remain erect and fertile for several days after maturing—if acceptable pollen is not applied to them. Upon the reception of pollen the pistils wilt in a very few hours. Although nature has made self-fertilization possible in the apple, she has made self-fecundation impossible in majority of cases and experiments go to show that self-fertility is the exception and not the rule—according to Encyclopedia Horticulture.

Some English investigators say that 80% of the pollination of orchards is due to honey bees. Prof. J. J. Davis of Purdue University, states that 90% is due to honey bees. According to Encyclopedia of Horticulture, experiments were conducted to determine what part the wind plays in distributing pollen of the apple blossom. Slides of glycerine were set in orchard to catch pollen. The slides were placed six feet in the air and 20 feet from a Rome Beauty tree in full bloom. The wind on the particular day was blowing at the rate of five to six miles north. After exposing slides four hours only one grain of pollen adhered. As each apple blossom contains five pistils and each is only the fraction of a centimeter, wind pollination would be more accidental than otherwise.

What attracts the bee to the flower—its nectar, color, odor and conspicuousness. Mr. Ray Hutson of New Jersey Experimental Station gives us some interesting results of Cage experiments conducted recently in the State of New Jersey. A Keiffer pear tree was enclosed with a 12-mesh wire screen cage and a hive of bees placed in the cage during blooming period. A similar tree beside it was enclosed but had no bees. The ground inside the cage was covered in the cheese cloth. After the blooming period was over, the blossoms, which did not set fruit fell upon the cheese cloth and were counted as were the set fruits. The tree which was enclosed with the bees showed: total blossoms, 8751; fruit set, 429 or 4.8%. The tree near which there were no bees had a total of 6479 blossoms; fruit set, 7 or 0.1%.

Counts of blossom and set of fruit at varying distances from the hives were made in the Stranger Orchard in New Jersey. Twelve trees were selected at 25 yards apart in 1924. The number of fruit set was very small. This may be accounted for by the adverse weather conditions for the working of bees. Three and four at the most were observed at different dates on trees near the hives and no bees wre found farther than 150 yards and only one bee was observed, 150 yards from the hive, the distance to cross fertile varieties.

In 1925 in this orchard the count showed extensive distribution of honey bees and good set of fruit on self-sterile varieties where pollinating bouquets were used.

Where the mistake has been made in selection of varieties at planting time it may be advisable to place pollinating bouquets throughout the orchard.

According to report by Prof. Ray Hutson, New Jersey Experiment Station, 9 to 11% of the blossoms setting fruit necessitate heavy thinning. 5 to 7% is all a tree will mature and 3 to 7% will produce a normal crop.

Just how shall we place our bees in the orchard? During 1923 twelve hives were placed in one group and counts made of the honey bees working in trees at varying distances from the hive group.

The average of two days' counts—April 26th and 27th—

At 25 yds. 33 were observed.
At 50 yds. 24 were observed.
At 75 yds. 13 were observed.
At 100 yds. 5 were observed.



To further study the effects of hive placing in the Minch Brothers orchard.

Bee hives were placed after every ten trees planted 20 feet apart. Counts were made on two different days of the bees on 60 trees in full bloom. It was found that the bees were fairly uniformly distributed over the trees and no case where there were less than three found on any tree with an average of about nine to a tree.

It will be noted that the count of bees on trees about hive shows that more bees are found on trees about large groups of hives than are found on trees about smaller groups.

The count of bees working flowers in an orchard with hives placed every 200 feet each way showed very little variation.

From the foregoing discussion you will note that all fruits tested show—

(1) An increased set when insects work freely among the blossoms.

(2) The honey bee is the best pollinizer man has under his control; therefore, the most dependable.

(3) Honey bees are most advantageously distributed on fruit trees when hives are placed singly 200 feet apart, each way about one hive to the acre, and about 15 feet from pollination bouquets when used.

## A Comparative Study of Indoor vs. Outdoor Systems for Wintering Bees

By Harry W. Beaver, Troy, Pa.

In my early bee keeping days I wintered bees outdoors with varying success, varying mostly downward; mainly I think, as I study the situation over, on account of insufficient packing, using at that time inch boards on the bottom, two inches of sawdust on the sides, and three to four inches on top, result one-third to one-half dead every spring and the remainder weak. The failure of this system of wintering induced me to try cellar wintering which I followed till a year ago. For the last few years the bees did not seem to winter so well, especially in the house cellar, mainly I think for the reason that they were crowded too much, making it impossible to keep the cellars cool enough. I saw that it was necessary to build more cellar or winter some bees outside or both. After studying the situation I concluded to winter five yards outdoors. I also built another bee cellar to take the place of the house cellar, as they did not winter very well in it, on account of the noise above and the uneven temperature.

There were several reasons for trying outdoor wintering. In the first place moving eight or nine hundred hives home in the fall and out again in the spring was too much work especially in the spring, for the time we had to do it in. Then again the lower prices on honey made it imperative that the labor should be cut down to insure a profit. Foulbrood control was another factor. Hauling cost, too, was taken into account, spring feeding was a big item, some seasons two and even three feedings being necessary, when spring flowers failed to yield nectar, or cold weather prevented flying. We usually use black neponset building paper for spring protection. By having winter cases we would do away with the labor of putting on and taking off this paper several times in a season.

I therefore decided on double brood nests to eliminate feeding, and quadruple cases with 4 in. of packing on the bottom, 8 in. on the sides, and 10 in. on top, which I think is about right for our section.

The cases I mentioned using years ago, wintered well south of Williamsport, but our winters are a whole lot longer and colder here in western Bradford county.

A comparison of figures of the two methods of wintering is interesting. This last spring, for instance, was too cool for nectar; therefore, feeding

of cellar wintered bees was necessary. I fed most colonies three times, and from five to ten pounds at a feeding of thin syrup, no nectar coming in till about June 14th when clover began to bloom.

The outdoor colonies were unpacked June 15th to 20th, some having considerable buckwheat honey left in the hives, which I was fearful would be carried into the supers, when the clover honey began to come in, but they stored quite a lot of clover honey in the second broodnests instead. At the time of unpacking, the outdooor wintered bees were very little stronger than the cellared bees were.

Now the figures; taking five apiaries of cellared bees, in the same sections as the outdoor bees were kept, to get as accurate statement as possible, we had in the fall of 1925 279 colonies. The spring count was 224, losing 55 colonies till June 1st, which was a rather large loss for cellared bees, due for several reasons; namely, a heavy buckwheat flow, no late flight, and a long, cold spring. These yards were increased to 265, making a loss of 14 colonies. They gave a surplus of 64½ lbs. average.

Outdoor colonies fall of 1925, 289, loss to June 1st, 41, leaving 248 spring count, which we increased to 402, making a gain of 13 colonies, with a yield of 70 lbs. of surplus. The labor was about the same on the two lots of bees from June 15th to October 15th, but from October 15th to June 15th there was a difference of five days labor.

Summing up we have this difference in favor of outdoor wintering:

| | |
|---|---|
| 5 days labor at $5.00 per day | $25.00 |
| 27 colonies of bees at $5.00 each | 135.00 |
| 5½ lbs. difference in yield, or 1364 lbs. honey at 8c per lb. | 109.00 |
| Total | $269.00 |

Or $1.09 per colony in favor of outdoor wintering.

I am not advocating outdoor wintering on the strength of one season, as winters differ in severity, and a winter such as we are having now might throw the balance to the other side, as our bees have not had a flight (January 22nd) since late October.

If you have a good cellar near the apiary I would not discard it, as I think where bees do not have to be moved a great distance the cellar is all right, but for outyards well protected from prevailing winds I favor the winter cases.

## The Interest of the Beekeeper in County Organization

By A. T. Kiel

As the time is getting rather late I will not take much of your time, but will give in a short concise way my views and experiences of the interest of the beekeeper in county organization, as it has come under my observation.

I find that the beekeepers, like others, want value received for the money paid out. This value received can be in the way of having meetings and some one there that they may consult in case of conditions arising of which they are not conversant, and get the information desired, also prospects of a clean-up of disease, a chance to get Bee Journals at a reduced price, a two day bee school, etc. Probably the most important thing would be to get a report of the conventions printed and distributed to all members, as many cannot attend meetings for one reason or another. Some have too far to go; others are busy at the time of the meeting, and so it is hard to hit a time that would suit a large number or all the members, and what the members want is something tangible to show for the fee paid.

The County Beekeepers' Association of which I have been an active mem-



ber since its starting, has at present time about 125 paid-up members, and which, as soon as the meetings start in the spring, will increase up to about 200. To create more interest and help the beekeepers we have district supervisors on whom any member in a certain district may call for information, and not have far to go for the information desired.

This I believe covers the situation; namely, that to create interest in an organization, that organization must give value received for dues paid.

## Election of Officers and Reports of Committees

### FINANCIAL STATEMENT 1927

| | | | |
|---|---|---|---|
| 1926 | | | |
| Jan. 20 | Cash on hand | | $1061.17 |
| | Dues collected | | 137.00 |
| | Int. on savings account | | 44.43 |
| | | | $1242.60 |
| 1927 | | | |
| Jan. 19 | Permanent Accumulative Fund | | $1090.07 |
| | Savings accounts | $107.78 | |
| | | 12.65 | 120.43 |
| | Voc. gold medal | | 10.00 |
| Cards and ribbon | | | 4.50 |
| | Ribbon | | 1.90 |
| | W. J. Nolan Exp. Acct. | | 15.70 |
| | | | $1242.60 |
| Jan. 19, 1927 | Permanent Accumulative Fund | | |
| | Mechanics Trust Co. | $1197.85 | |
| | Grange National Bank | 12.65 | $1210.50 |

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| Hercules Non-Sagging Foundation | .28 | .25 | .22 | .20 |
| Medium Brood Foundation | .28 | .25 | .22 | .20 |
| Light Brood Foundation | .30 | .27 | .24 | .22 |
| Thin Surplus | .34 | .30 | .27 | .25 |
| Extra Thin Surplus | .36 | .32 | .29 | .27 |

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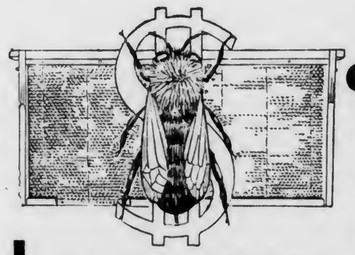

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